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RAIN: Journal of Appropriate Technology

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RAIN

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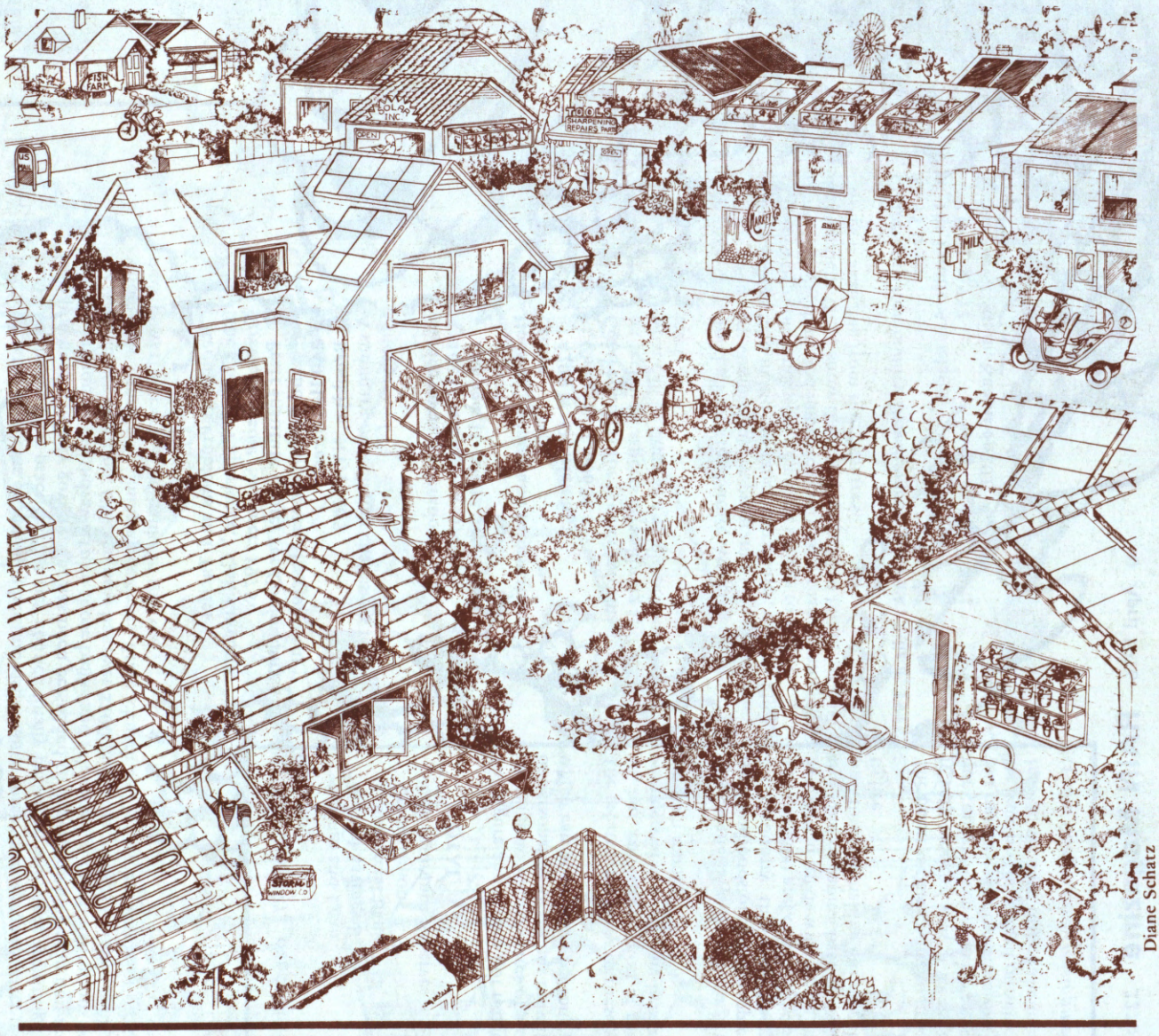

Diane Schatz

Special Poster Issue

- ★ Visions of Ecotopia
- ★ Good-Bye to the Flush Toilet
- ★ Make Where You Are a Paradise
- ★ Dollar Power

Habitat Issue. The June issue of *RAIN* will be a special issue related to the International Habitat Conference to be held in Vancouver, B.C., May 29-June 11. It will be a guide to the Northwest that people can use along their way to the conference, with maps like our energy map, places to see, people to visit, sources of information, patterns of settlement, etc. We'd appreciate input.

Just up over the Cascade Mountains, and from there clear across the country, white, ice, frozen. Landing at Baltimore airport (Pittsburg looks wiggly from 30,000 feet at night). On my way to announcement of "Horizons on Display" program, a project of HUD and the American Revolutionary Bicentennial Commission. A selection of 200 groups around the country doing representative, working, unusual community projects. I went representing the Northwest Environmental Communications Network—which used to be Robert Stilger's name for what he was doing at the Environmental Education Center before going to Spokane (NW Regional Foundation, Futures Conditional, etc.), and now is sometimes assumed name of some of what we are doing.

If you would like a catalog of the two-hundred groups selected for the Horizon on Display program, write to *RAIN*, Attn: Steve Johnson. Some very interesting programs were represented, though unfortunately the conference was one way, and it was an uphill struggle to make any contact other than random encounters at breakfast, etc.

About forty persons attended a meeting on government policy and appropriate technology, hosted by Byron Kennard, National Council for Public Assessment of Technology, in D.C., Feb. 4. Attendance included people from FEA, Public Interest Economics, Institute for Local Self-Reliance, Consumer Action Now, ZPG, ERDA, National Intervenors, Habitat National Center, Community Services Administration, Rockefeller Brothers Foundation . . . discussed was the possible drafting of legislation for monies in ERDA for appropriate technology.

Moving right along: I visited with Murry Durst of IDEAS (Institutional Development and Economic Affairs Service Inc.). IDEAS assists groups wanting to start Foxfire type projects, of which there are over thirty in the country. The original Foxfire project in Rabun-Gap, Georgia, is now involved in land use issues as they study the impact of migration in (due in part to the movie *Deliverance*) and migration out (absentee landlordship problems, etc.). IDEAS is going to expand their assistance into the area of what they call "Community Based Experiential Learning." In the state of Washington, the Centrum Foundation is coordinating a state-wide Foxfire training program and newsletter, eventually magazine, relating Foxfire type information (Centrum Foundation, Ford Worden State Park, Port Townsend, WA 98368). IDEAS, 1785 Massachusetts Ave., Washington, DC 20036.

Ken Bossing, with People and Energy (and Center for Science in the Public Interest), is working on exchanging mailing lists among energy groups in order to facilitate more communication. Also they are compiling a list of people willing to present testimony in energy legislation matters. . . . The various energy groups in D.C. meet on a monthly basis. . . . CSPI is completing a new version of the Lifestyle Index. . . .

Wes Thomas (Synergy Access) is getting ready to put out another magazine on communication, working on a book on futures communication, and with Roy Mason (The Futurist) on the "futures option" format for learning and conferencing, which is currently in operation at the Finders headquarters in D.C.

The Institute for Local Self-Reliance. Spent much time with Gil Friend and others. They have received two grants for continued support. *Self Reliance*, their newsletter, will be out soon.

From them, but others as well, I kept getting the feeling the alternative energy self-reliance, a.t. "movement" has reached a certain point: time for more solid evaluation principles. People going back to school to fill in gaps; wanting uniform methods of analyzing independent research developments.

Emmaus, Pa. Along with Dave Deppen (a *RAIN* contributor and assistant to Malcolm Wells, architect) went to see the Rodale Press people. Much more than a press. Warm greeting (thank you again). An impressive readers' service and information and referral operation in addition to their well-known periodicals and books . . . working on a book on on composting privys . . . doing fishing in the basement . . . experimenting with bicycle-powered kinds of tools . . . a book on simple homestead plans (sprouter, sauerkraut cutter, cider press, etc.—all of which they build in their shop in order to test).

continued next page

This special issue is one we've been wanting to do for a long time—since last spring, in fact, when we first started working with Lee and Steve on *RAIN*. When Meg asked if she could spend her winter work term from Bennington College (in Vermont) with us, it seemed like the time had come. Enough information has surfaced in several areas to suggest strongly that we change the way we do things. We thought it ought to be brought together so we all can see. It feels good to get them done.

Cover & Ecotopia Drawing: Diane Schatz
Graphics & Layout: Meg deMoll
Writing: Tom Bender & Lane deMoll
Photographs: Tom Bender

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For subscription prices, see subscription blank on next-to-last page. This blank can also be used to send us change of address messages.

RAIN's office is at 2270 N.W. Irving, Portland, OR 97210. Phone 503-227-5110.

Subscriptions

With the remainder of our grant running out it is going to be necessary for us to increase the price of new subscriptions to $10 in the near future. We'll give you the details in the next issue. If you haven't subscribed yet, do so before the price goes up!

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Nancy Lee
Tom Bender
Lane de Moll
Lee Johnson
Steve Johnson

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dollarpower

Almost everyone feels a little uncomfortable about money. We kno
for or be equated with a lot of things that are important. Yet we als
And we often have suspicions that a lot of hocus-pocus is going on i
end of the deal. It turns out that there IS a lot of hocus-pocus going

*Bankers who control loan policies have the power to determine wh
form our cities take—without any public disclosure or involvement.
public monopoly.

*Widespread banking practices such as redlining—where banks deter
because it might be less profitable—create slums and replace homeo

*High interest rates on money make all financial calculations discou
of our resources and speculative activities—and making a sustainable

*Unregulated manipulation of our money supply by banks has been

*Although most of the money a bank uses belongs to depositors, no
deposits, banks claim they must make the "most profitable" loans—
activities that remove money and jobs from a community rather tha
economy and create local jobs.

Our history of being unwilling to deal with the complexities of the
left them open to unchallenged use by developers and speculators. T
most important element in the deterioration of our cities and the po
create our vast, ugly and expensive suburbia.

Today more and more people are realizing the power that their mon
range of ways to use their money productively while retaining contr

The Bankers, by Martin Mayer, Ballantine, 1974, $2.25. Gives a goo
system. Talks about how banks are used to the advantage of a small

The Seven Laws of Money, by Michael Phillips, Word Wheel (540 Sa
Opens up a lot of new perspectives on how to deal with and withou
ends.

New Age Journal (32 Station Street, Brookline, MA 02147), $8/yr.
money—credit unions, tithing, businesses. *NAJ* No. 11 (March, 1976
cellence, Bob Schwartz.

Sweat Equity

***Do* it—don't pay someone else to do it for you!**

Our own work is often the best kind of money possible for financing projects. We don't have to get someone else's approval, and we can use our evenings, weekends and other normally non-income-producing time productively. Building a home ourselves can reduce first costs by at least fifty percent, while using our time recycling materials instead of purchasing new ones can cut costs another 20%. Building a house in sections as money and time become available instead of all at once can avoid costly financing. This is important because financing costs double and even triple what we end up paying for a house. An owner-built house costing $5.50 per square foot for materials would end up costing $33 to $50 per square foot if built as a tract house—once mortgage costs are added in.

Our own work is also more valuable. When we have someone else do work for us, we have taxes taken out of OUR income before we hire them, we have to pay for their profit, and we are usually limited to union productivity levels. For more details see:

***The Owner-Builder and the Code*, Ken Kern, Ted Kogan, Rob Thallon, 1976, $5 from:**
Owner-Builder Publications
P.O. Box 550
Oakhurst, CA 93664

In New York City, a six-story, 23-unit tenement at 251 East 119th Street, in East Harlem, has been rehabilitated by a street gang—the Renigades—into a tenant-owned and managed cooperative. Sweat equity by volunteers to earn their own apartments has allowed projected rents to be $130 per month as opposed to $250 per month for similar one-bedroom apartments done by private contractors. Materials and salaries for 12 gang members who performed most of the work were financed by a loan from the city's Housing and Development Administration. In a similar project on the Lower East Side, in addition to rehabilitating the building, solar collectors have been designed for the roof to supply hot water, and the now-skilled group plans to rehabilitate other buildings and manufacture solar heaters for other locations. For further information contact:

Pratt Institute Center for Community & Environmental Development
240 Hall Street
Brooklyn, NY 11205

Credit Unions

Credit unions are locally controlled savings and loan organizations set up by a group of people to retain control of how their savings are used. They avoid some of the problems with placing your money in a bank where it is then loaned out on the bank's terms to the "best credit risks" (mostly large corporations). Because each member of the credit union has a vote in policy-making, YOU can borrow and loan money for purposes YOU value.

Savings are insured by the federal government, members keep for themselves the normal bank profit. Members must have a "common bond"—living within a specific area, working for a common employer, or sharing membership in an organization whose activities develop common loyalties and mutual interests.

Although a very beneficial alternative to normal banking institutions, credit unions may have several difficulties. Lack of capable financial management often causes problems, short time limits on loans frequently prevent home mortgages (though at least one credit union set up its own savings and loan to allow home mortgages), and loans cannot be made to non-members or organizations. Many people cannot qualify for affinity requirements and cannot obtain credit union services. And the money belonging to a credit union must be deposited in a normal bank—permitting its use by the bank despite the wishes of credit union members.

Approval procedures are often difficult—the federal government refused to allow a national prisoners' credit union that was being set up because prisoners' savings are put into a fund whose interest goes into the guard's retirement fund fund! The government claimed the prisoners had no common bond! A feminist credit union *has* been set up in Massachusetts, and local ones are much easier to do.

At least two co-ops we know of have recently organized credit unions:

Ashland Community Food Store
37 3rd St.
Ashland, OR
and
New Pioneer Cooperative Society
529 Gilbert
Iowa City, IA 52240

For more information on credit unions, write National Credit Union Administration, Washington, DC 20456, or Edward T. Bernhoft, Director, Regi0n VI, 760 Market Street, Room 809, San Francisco, CA 94102.

Tithing

Tithing is a very different kind of banking—it is simply taking responsibility ourselves for what our money does. In the strictest traditional sense, it means giving one tenth of a year's produce or profits away (originally to the Church). Many people are going back to this practice—no matter how little they have—and are finding the rewards great.

Tithing can be looked at as an investment—whether time, interest or dollars—and its most important benefit may be in learning how to invest wisely and soundly. It could be the beginning of getting away from the abstractions and material rewards of money. For further thoughts on tithing, see the December 1974 issue of

New Age Journal
32 Station Street
Brookline, MA 02147
($1, back issue)

Many food co-ops have worked out related plans where they have invested their profits in new enterprises. In Minneapolis, the North Country Co-Op seeded other neighborhood co-ops, a bakery, a warehouse and a restaurant. Austin, Texas, and Iowa City, Iowa, co-ops have done similar seeding—starting related enterprises without keeping control of them like the horizontal and vertical expansion of large corporations.

The Eugene Community Sustaining Fund is a good example of a formalized institutional tithing pr
call it a voluntary tax of conscientious businesses to support community needs out of their profits.
is generally contributed, and the funds are used as seed money to start and assist projects of value t
sort of a more adventurous and less fossilized Community Fund!

Eugene Community Sustaining Fund
Box 340
Eugene, OR 97401

State Banks

North Dakotans, fed up with being at the mercy of out-of-state bankers charging excessive rates for rural credit, set up a state-owned bank in 1919. One of the most profitable banks in the country and presently the only one that is state-owned, it saved thousands of farmers from ruin in the depression and now has about $32 million in loans to farmers, $35 million in housing loans and $27 million in student loans. The bank, largest between Minneapolis and Spokane, relies heavily on deposits of state funds, avoiding the potential misdealings resulting from divvying up state deposits to the profit of private banks and keeping state money inside the state. Public disclosure and public control are two obvious advantages of state banks. Moves to set up similar systems are underway in Washington, Oregon, Massachusetts, Colorado, New Jersey and California. See "Banks of North Dakota," by Derek Norcross, *Parade* Magazine, November 9, 1975.

Redlining

Easy financing and our patterns of changing jobs, cities and residences every few years have resulted in the vast majority of our homes and neighborhoods being under perpetual mortgages—to the profit of financing institutions and at great cost to our communities. Financing costs on a $10,000 house that lasts 100 years and is paid for five times at 6% interest amounts to $86,000! Cooperative community financing as proposed by Joe Falk (see "Greenlining" section) eliminates such mortgage pyramiding, saving almost $70,000 per house!

Branch banking and non-enforcement of charter regulations allow banks to take money from one area and loan it elsewhere—making loans unavailable in the local community and making the savings of poor people in the city pay for developing rich suburbs. The Central Seattle Community Council Federation showed that for every dollar placed in savings institutions by Seattle city residents, about 30¢ is reinvested in the city, while for every dollar invested by suburbanites, about $2 is reinvested in suburban growth. A group called the Committee to Challenge Savings and Loan Association Policies is working now on anti-redlining and related actions.

Redlining is the practice whereby bankers quietly determine that they won't make loans in a part of town where it might be less profitable to them. They thus effectively draw a red line around a neighborhood, creating a self-fulfilling prophecy of deteriorating and vacated slums.

The problems these practices generate for our neighborhoods are very real. Excellent studies of the Adams-Morgan District of Washington, D.C. are available from:

Institute for Local Self-Reliance (ILSR)
1717 18th Street, N.W.
Washington, DC 20009

***Redlining: Mortgage Disinvestment in the District of Columbia*, by ILSR, the D.C. PIRG and the Institute for Policy Studies, $1.50.**
Provides detailed documentation by zipcode of loan practices of local savings institutions and the failures of regulatory agencies, as well as the actions that can be taken to remedy the problems.

***Money, Money, Who's Got the Money?*, William Batko of ILSR, $1**
Gives a brief overview of DC banking practices that remove money and profits from the District and their effects on economic activity in D.C.

***The Adams-Morgan Business Sector: Paying for Other People's Development*, Batko, Connor and Taylor, ILSR**
A fine study of the detailed economic, employment, environmental and social effects of different banking practices upon a neighborhood. Comparisons show, for instance, that supporting local non-chain stores instead of franchises and shopping centers keeps more money circulating in the community and produces significantly more employment per dollar of sales.

Greenlining

Programs to combat redlining and to make money available for neighborhood development have been successful in several areas.

The U.S. Congress has finally passed a bill (S-1281), which the President has signed, requiring disclosure of lending practices by financial institutions, which will assist individuals and community groups researching redlining practices. It won't help, however, with more subtle variations of redlining such as discriminatory interest rates, excessive downpayment requirements and unusually short loan periods, or with redlining practices by insurance companies. Write your Congressperson for a copy of the law.

In Chicago the problems of redlining became visible some three years ago, and, after many unsuccessful attempts to get banks to change their practices, the city council finally passed an ordinance requiring full disclosure by banks of their loan practices. The city government has been persuaded to deposit its money in non-redlining institutions, and more than $2 million was withdrawn from those banks and reinvested in other institutions who had formed agreements with the community coalition. Chicago now has over $100 million in pledges to move savings from redlining lenders, five of whom have signed greenlining agreements. State, church and retirement funds, or other large blocks of savings can produce powerful leverage on banks in this way.

"Redlining: Problems and Tactics–The Chicago Experience," Gail Cincotta, *Street Magazine*, Summer, 1975
Pratt Institute Center for Community and Environmental Development
240 Hall Street
Brooklyn, NY 11205
A summary of redlining challenges in Chicago.

Homeowners' Federation
10234 Washtenaw Avenue
Chicago, IL 60642
and
Housing Training and Information Center
4209 W. Division St.
Chicago, IL 60651
Good contacts for further information on technical aspects of redlining and what can be done at a neighborhood level.

In Kansas City, Joe Falk and the Future Associates have worked out a very comprehensive program of leveraging community savings held in life insurance companies, various kinds of banks, pension funds and individual savings to secure funds for neighborhood improvement rather than commercial development. They show that more than $210 billion of our savings is available from those sources.

***Cooperative Community Development*, Joe Falk, Editor, 1975, $2.95 from:**
The Future Associates,
P.O. Box 912
Shawnee Mission, Kansas 66201

At the end of 1972, our collective savings amounted to the following:

Savings and Loan	$207,300,000,000
Mutual Savings Banks	$ 91,300,000,000
Commercial Banks	$276,100,000,000
Credit Unions	$ 21,700,000,000
Life Insurance Reserves	$203,600,000,000
TOTAL	$800,000,000,000

The figure above does not reflect our personal or commercial checking accounts, shares of stock or cash equity in our homes or personal property but only individual or corporate savings which can be invested for long periods of time.

The greatest majority of these savings are owned by individuals, but, conversely, most of the funds are used to finance commercial activity only because we are not organized to use our own money.

If we loaned the above savings to 40,000 potential developing neighborhoods of 5,000 people each, which would cover the entire country, this would provide each neighborhood with $20,000,000 and each family of four people with about $16,000 in funds with which to finance a place to live. With this kind of capital base and a little leverage we can go a long way towards making our neighborhoods better places in which to live.

The point we are trying to make here is that we are collectively very wealthy, and, if we use our wealth wisely, we can make our country even better than it is. We have no one to blame but ourselves for our situation, since we have the money, but we have not organized ourselves so we can use our savings. Instead we have turned them over to others to manage for us.

(From *Cooperative Development*)

 RAIN Magazine 2270 N.W. Irving, Portland, OR 97210

/e know in our own dealings that money cannot substitute we also tend to believe that money can solve our problems. ng on inside the money business that leaves us on the short s going on:

hine who succeeds and who loses in our society and what ement. And this within a banking system that is actually a

s determine that they won't make loans in a part of town homeowners with absentee landlords and speculators.

discount the future—justifying and encouraging rapid use ainable society virtually impossible to attain.

as been a repeated factor in inflation.

ors, not stockholders, and in spite of interest limits on such loans--meaning that they end up supporting profiteering her than ones that deal fairly at low prices, support the local

of the financial marketplace that our savings support has tors. This reticence on our part has probably been THE the power of speculators to devastate our farmlands and

ir money has and are developing an increasingly versatile g control of the conditions and purposes of its use.

s a good overview of the manipulations inside our financial a small number of people.

540 Santa Cruz Ave., Menlo Park, CA 94025), $3.95. without money and use our resources creatively to good

$8/yr. *NAJ* No. 2 ($1) is an excellent issue on dealing with , 1976) is an interview with new age entrepreneur par ex-

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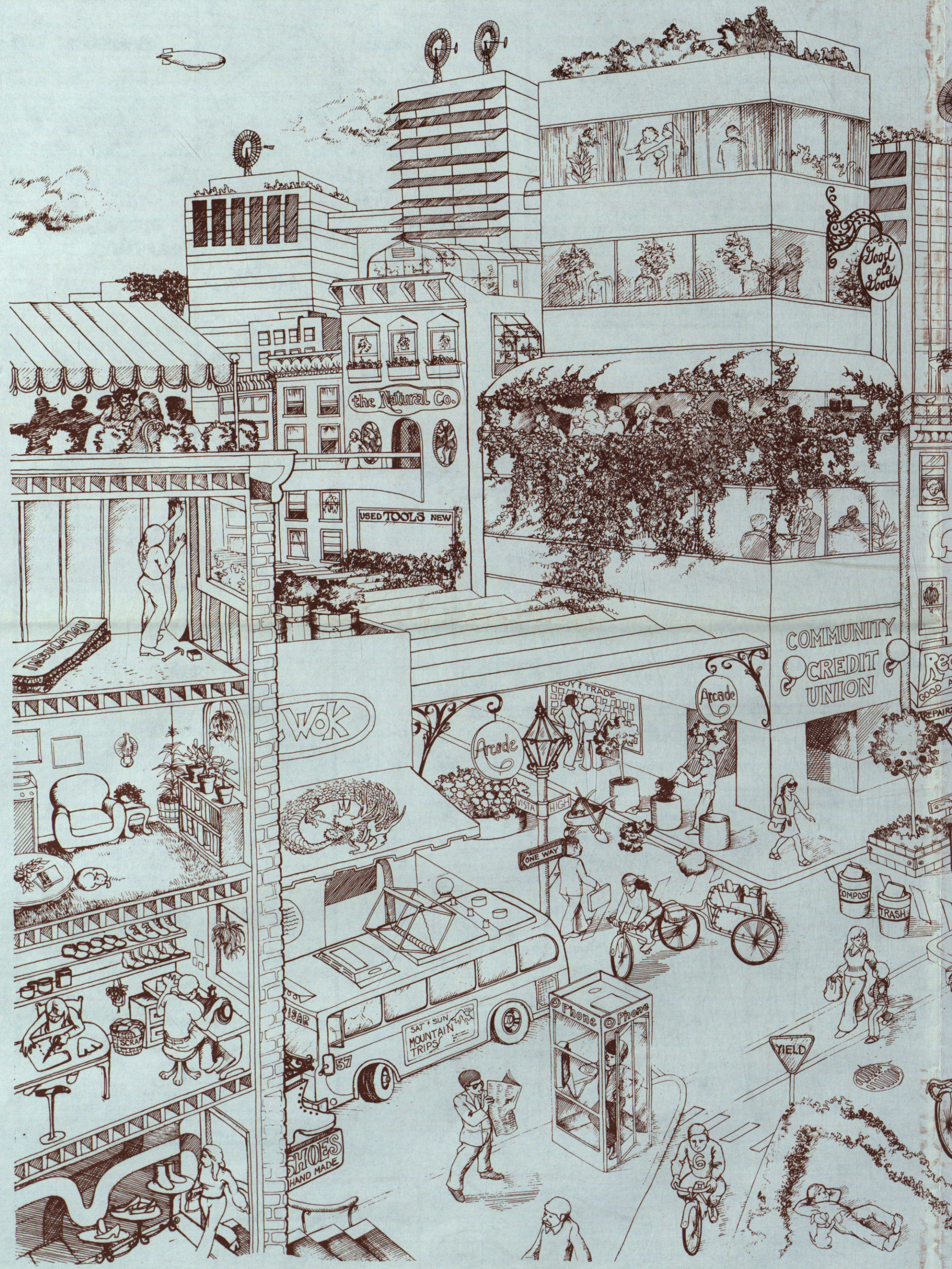
ing process. Or you might rofits. About 2% of income value to the community—


Good ole Goods
the Natural Co.
USED TOOLS NEW
INSULATION
WOK
Arcade
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COMMUNITY CREDIT UNION
BUY & TRADE
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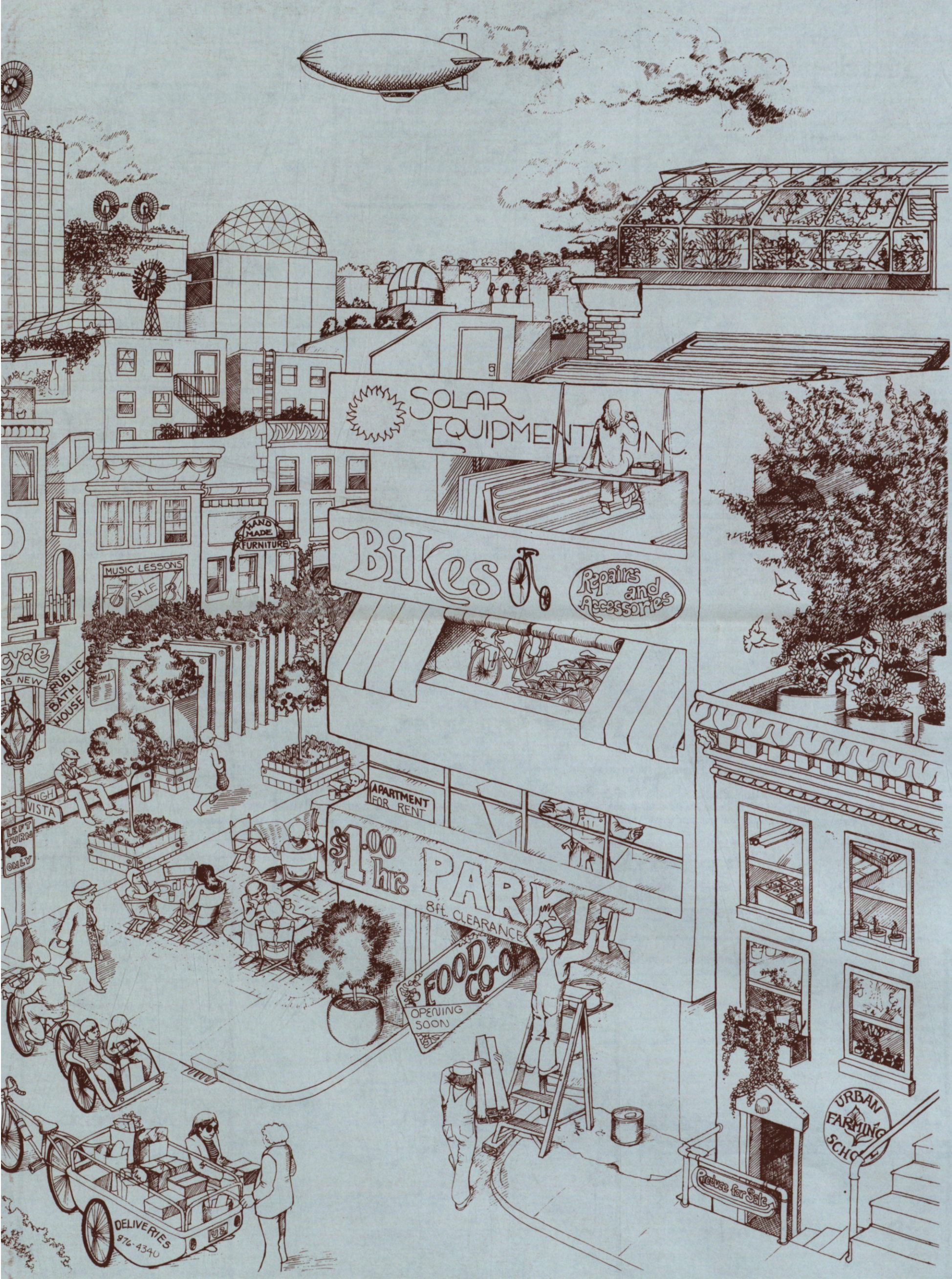


Diane Schatz

A bicycle is probably the most efficient means of transportation for humans. It requires less human energy than walking, and it feels good—it's fast, too, when the distances aren't too long and the streets are safe. Consider the costs this way: it takes 1500 hours of our time to travel and pay for traveling our yearly average of 7500 miles by car, including time to earn money to pay for car and repairs, time walking to car, parking it and waiting at stop lights and traffic jams. It takes only 750 hours of time to travel and pay for traveling the same distance by

bicycles

(averaging 10 mph). See Ivan Illich, *Energy and Equity* (Harper and Row, 1975, $1.25).

Our current road system in most places is designed for motor vehicles and actually discourages bicycle use. A number of states and communities have begun to establish bikeway programs, but we still have a long way to go to even measure up to the Scandinavian systems. Interesting variations on bicycles are bicycle-powered vehicles. There is a very successful pedicab business for tourists in Seattle's Pioneer Square, and Asian cities such as Hong Kong and Bangkok have had

putt-a-cabs

for years.

Appropriate Technology
IT Publications
9 King Road
London, England
$7/yr surface, $10.50 airmail, quarterly. Often has excellent articles on bicycle ambulances, carts and other simple transport.

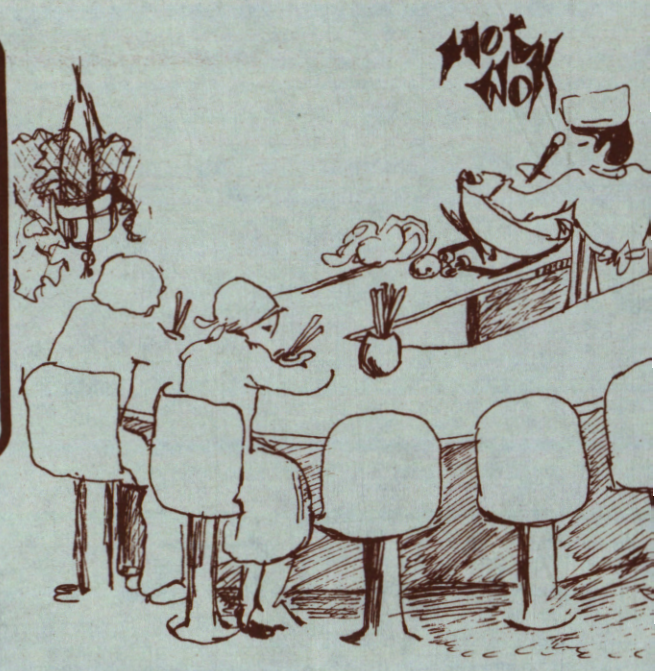
"Bicycle Transportation," S.S. Wilson, *Scientific American*, March 1973.
For more information on bicycle efficiency.

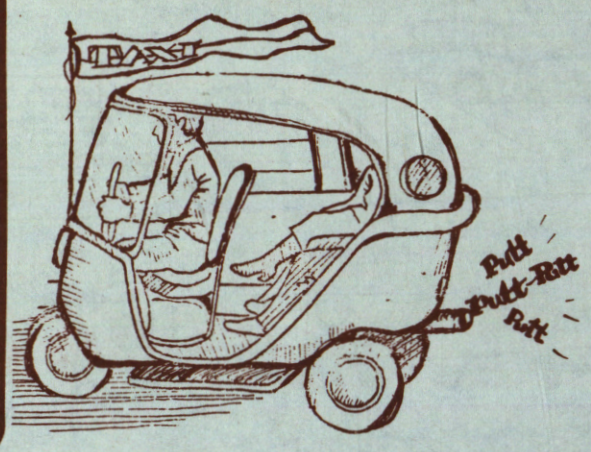
The Philadelphia Bicycle Coalition
c/o John Dowlin
3410 Baring Street
Philadelphia, PA 19104
They are compiling a list of active bicycle organizations—write them for price and availability.

Cooking in woks the Chinese way and using the traditional cooking methods of other nations greatly decreases energy use—chopped food at higher temperatures for a short time. In Japan,

hot wok joints

give you a wide variety of excellent meals in 30 seconds! Better than MacDonald's by far. For a good wok cookbook, see *Regional Cooking of China*, by Margaret Gin and Alfred Castle (101 Productions, 1975, $4.95). See also the January 1976 issue of *RAIN* for an overview of low-energy cooking, "Eating High and Lightly."





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Transportation

accounts for 25% of the total U.S. energy use. The best option for simpler, cheaper and lower energy patterns is eliminating the need for transportation—living near your work, or spending more time at home growing food or enjoying your neighbors. Recent studies have clearly shown that increasing the density of areas substantially reduces the need for transportation—and zoning regulations which allow intermixing of businesses and residences can reduce the need to travel any further for daily necessities.

At the same time, communities should provide viable alternatives to the increasingly unaffordable automobile. One option is for a low-cost rent-a-car system for local use. Being able to get a car or van or pickup cheaply and easily when wanted can eliminate the expense and bother of owning a car (or several for different purposes) for people who have no use for a car in the city for weeks on end but do need some kind of vehicle occasionally.

If buses (let alone trains) were to replace totally the automobile for transportation within our cities, that alone would create a 5% national energy savings. School buses can be built to allow their use as

public transport as well, or we can simply give the school children passes that allow them to ride the (improved) public system. This might provide a fine solution to some of the busing/desegration hassles in many cities. You rarely see Japanese children in school buses—they ride all over the city on public transit to different schools.

Many Middle East and Latin American cities have intermediate systems of shared taxies, light buses and shuttle services. Some communities in this country are now instituting programs where a computer routes cars as people call in. Others are setting up cooperative shopping shuttles to various neighborhoods.

A lot of energy and transportation costs could also be saved by

delivery services

Bread, milk, fresh vegetables, could come daily, or a centralized service would deliver phoned-in orders to grocery stores, department stores and the like . . . a more commonly used, localized U.P.S. Why not start on in your neighborhood?

One-half of the land area of some cities is devoted to the care and use of the automobile. Consider freeways, streets, service stations, parking facilities and used car lots. One of the nicest visions of Ecotopia is the

changing functions

of all that structure as autos become more expensive to operate.

The Swedish Building Research Council has put out a report that deals with designing parking garages to permit later conversion to offices and apartments: *Parking Facilities for Alternative Uses* (R41-1975), by Jan Dyfverman and Jan-Erik Hollander, Svensk Byggtjanst, Box 1403, S-111, 84 Stockholm, Sweden. Available in English Synopses and Summaries, June, 1975

In many towns there are streets and alleyways which are not main traffic arteries and whose elimination would not be sorely missed in terms of parking, access to homes, garbage removal or fire lanes. Many of these

'extra' streets if converted to neighborhood greenspace, bicycle paths, or community gardens, would provide valuable land for the common good.

We may see the day when cars are banned from cities all together—who can forget the charm of Venice? In the meantime, cities are beginning to establish disincentives for drivers, such as high parking fees in downtown areas, toll roads and fuel taxes. In many cases, such measures are being combined with graduated fees or special highway lanes to encourage car pooling.

City gardens are important too—urban families can become a lot more

self-reliant

by growing vegetables on the roof, in window boxes, in the back yard, or even between the street and sidewalk when there's room. Take a look at:

The City People's Book of Raising Food
Helga and Bill Olkowski
Rodale Press, 1975
Emmaus, PA 18049
$4.95

The Olkowskis are directors of the Farallones Institute Integral Urban House (1516 5th Street, Berkeley, California), where on a tiny city lot they are raising enough food—including chickens and rabbits (and soon fish)—to feed the six people who live there. They also compost all their organic wastes to put on the garden, using a Clivus Multrum compost toilet and a normal leaf/vegetable compost pile.

There's an important controversy going on about the amount of toxic chemicals, like lead, in

city-grown foods If we clean up the air and cut way back in our use of cars, the problem will be solved. In the meantime, wash your lettuce!

Other good folks to talk to:
Institute for Local Self-Reliance
1717 18th St., N.W.
Washington, DC 20009

In the past 30 to 40 years, Americans have separated work from home so that we have in effect doubled the amount of space, heat, light and sewage facilities we need. We have also greatly increased transportation needs for commuting to work and shopping, while needing police to watch over the places we just left. Current zoning regulations often prevent

working at home

and other multiple uses of land and buildings. Yet, serving local needs provides local jobs and income. The establishment of offices and light "cottage industry" in presently primarily residential areas—as long as it does not pollute or otherwise burden the neighborhood—should have substantial benefits in terms of energy savings, livening up neighborhoods and in family life. You don't need day care if either or both the parents can work at home.

Community enterprises

are an important aspect of changing land use—the old "Mom and Pop" grocery stores which had just about everything you needed, next to the thriving small bakery, the wooden furniture studio, and the town hall and library. How much more alive and vital it would be if each neighborhood had its own particular flair and character due to its localized, largely self-reliant economy. This can be true of the inner city neighborhoods or the small rural towns. We have so long relied on driving to identical-looking shopping centers to buy identical brands that it is difficult to distinguish different parts of the country, much less different parts of a city, from each other. In addition, those franchises, as opposed to locally-owned businesses, drain money out of the community into the larger financial centers—usually out of state.

Schools don't have to be in big, red brick buildings!

The Philadelphia Parkway program has classes taught by chemists in professional labs, bankers in conference rooms, and mathematics in movie theaters and city parks.

doubling up

on the use of facilities—making public facilities less specialized—can save energy and materials in countless ways and help make the city more vital. If, as we hope, much more business happens on a smaller scale out of houses and neighborhoods, there may well be scores of high-rise offices where learning activities can be scattered in among residences and manufacturing uses.

There's also the whole important area of

apprentice learning

—productive instead of consumptive learning—for *all* ages. It can work with a carpenter or an architect, for an eight-year-old or an octagenarian.

***Yellow Pages of Learning Resources*, Richard Saul Wurman, Editor, 1972, $1.95 from:**

Group for Environmental Education
1214 Arch Street
Philadelphia, PA 19107

Philadelphia Parkway Program
Information Officer
Parkway Program
c/o Franklin Institute
20th Street and Parkway
Philadelphia, PA 19103

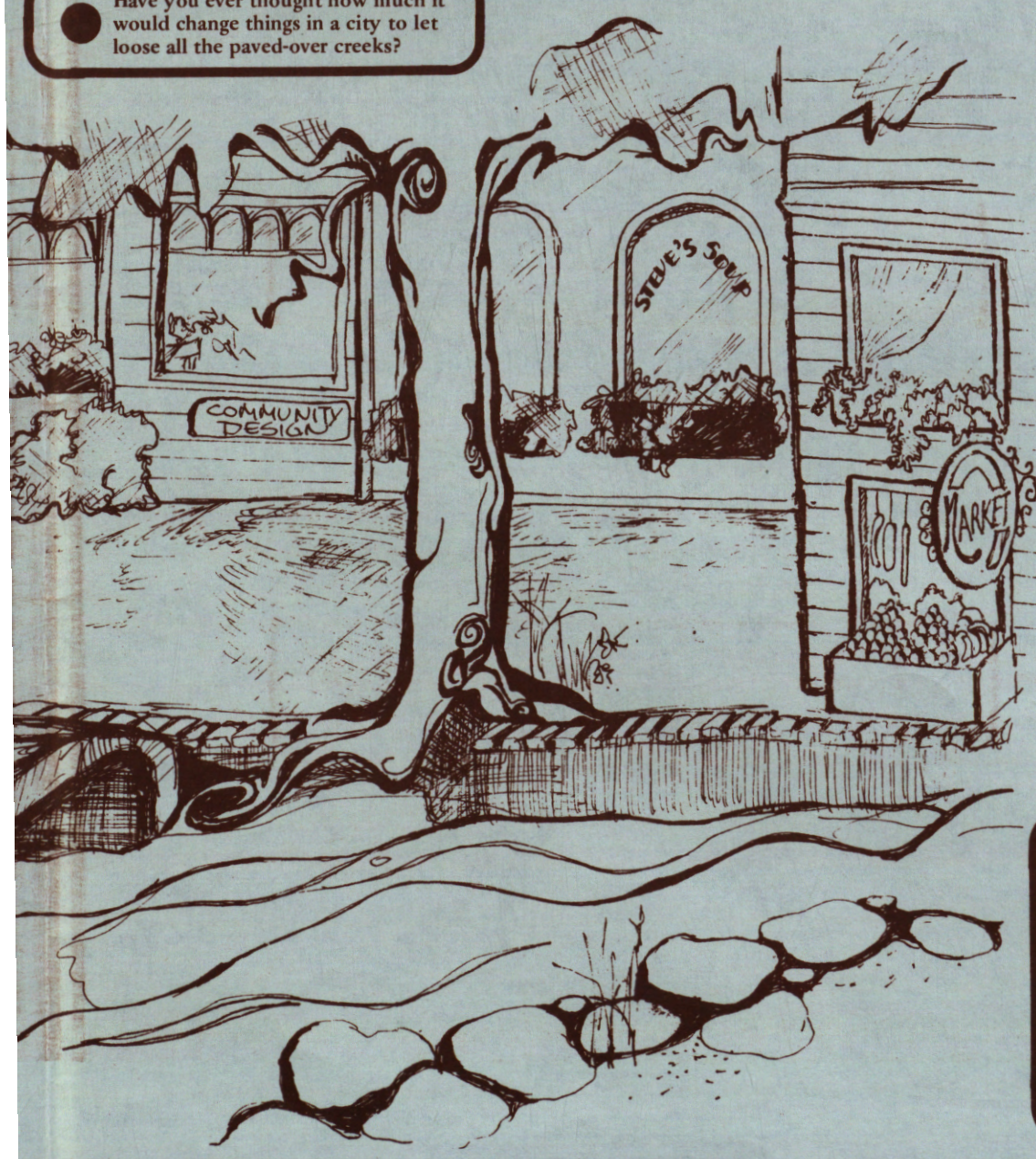
TOPIA

ges are happening today in different places that add up to a good and POSSIBLE vision of what our e Schatz's drawings, like Ernest Callenbach's *Ecotopia*, show what some of these ideas could be like Our future will obviously be different from this, but being able to visualize some of the possibilities o focus our energy onto bringing good futures into being.

here of the new San Francisco can perhaps best be seen in the fact that, down Market Street and some now run. These had earlier, at great expense, been put into huge culverts underground, as is usual in ns spent even more to bring them up to ground level again. So now on this major boulevard you may s of little falls, with water gurgling and splashing, and channels lined with rocks, trees, bamboos, ferns. be minnows in the water—though how they are kept safe from marauding children and cats, I cannot

From *Ecotopia*, Ernest Callenbach, Banyan Tree Books, 1975
1517 Francisco Street, Berkeley, California 94703, $2.75

Have you ever thought how much it would change things in a city to let loose all the paved-over creeks?



***All* non-renewable resources we do not recycle are a loss of our material wealth. We cannot afford to waste anything or throw it away. Remember, there is no "away"!!**

50% of the total energy cost of new products can be saved when paper is recycled, and 98% of the total energy cost of aluminum could be saved. If the entire U.S. were to switch to returnable bottles and cans, as Oregon and Vermont have, it would add 130,000 jobs, cut consumer costs by $1.4 billion and would reduce national energy use by .05%—eliminating the need for three nuclear power plants.

*It's important to

reuse

things as much as possible. Just as old clothes can be handed on till they make nice patchwork quilts and rugs, old buildings can be turned into exciting spaces for living and working. If buildings have to be torn down, there is much in them that can be recycled. Most cities have places where you can buy salvaged materials. In some cases, zoning, code and/or insurance regulations and lending practices make it difficult to recycle old buildings, but they represent a vast resource in cities and rural areas alike.

*As energy and material costs rise, urban solid waste programs dependent on high amounts of energy and machinery are becoming uneconomical to operate, while those based on human skills are beginning to have an advantage. Labor-intensive systems are also more easily able to adjust as different materials change in value. Many materials which do not have much market value at any one time (like now!) can be stockpiled until prices rise.

Separation at the source

—the household or business—is the most efficient and economical means of recycling. It is a process that only takes a few seconds at that small scale, yet it also makes it possible to compost organic matter for reuse on the family or office garden. Multiple-section trash bins for home use are now being designed and marketed, while the Ore Plan type of neighborhood collection system provides a good model for labor-intensive recycling (see January 1976 *RAIN*).

*Another good idea, which has been successfully tried in Minneapolis, is to establish

leaf composting

operations. In 1972, Hennepin County began depositing all the leaves they had collected from their regular fall street clean-up in a large unused lot. In the spring the resulting compost was given away to residents free of charge.

Remember how nice it is to sit in a

sidewalk café

in Europe and watch the people go by? Take a look at Bernard Rudolphsky's *Streets for People* (Doubleday, 1969) to see how city streets can be used. Beautiful photographs from Italy, Japan and the Middle East. In many cities the regulations affecting these practices need to be changed—fewer cars will help make the atmosphere more pleasant, too.

STOP TOURISM

make where you *ARE* paradise

People travel for many reasons, yet very few of those reasons can best be satisfied by travel. Entertainment, rest and "getting away" can all take place in our own communities. Wise travel requires that we first minimize unnecessary travel by improving the places where we live and our relationship with the people with whom we live.

We must then develop patterns of transportation, accommodation and recreation that require less energy and money to operate, create more direct and personal contact among people, and cause less damaging impact on the environment.

 RAIN Magazine 2270 N.W. Irving, Portland, OR 97210

Wise Travel

Though tourism has become a major element in many economies, its costs are causing many second thoughts and a search for better alternatives. The United Nations Environment Program is now studying the impact and costs of tourism in developing countries, and several cost-benefit studies have been completed by other agencies and academic institutions.

Environmental damage from tourism is often major—Spain has converted the most beautiful parts of its coast to a tawdry vacationland with monumental pollution problems. Free-roaming Land Rovers in East African wildlife parks have destroyed large areas of the savanna. Extremely limited agricultural land in Hawaii and other areas has been converted to golf courses, parking lots and hotels, forcing local dependency upon costly imported food. The influx of tourist money is obvious, but it is highly fluctuating according to season and the world-wide economic climate.

Even in the best of times little of the income from tourism ever reaches the local populace. From half to two-thirds of it is re-exported to metropolitan areas or countries for petroleum, materials and supplies and as profits for large corporations controlling resorts, transportation, entertainment and financing. Much of the remaining money is retained by a limited number of local developers, while expenditures of local tax money on roads, water supply, telecommunications, airports, sewage systems and police are often designed with tourism primarily in mind and amount to direct subsidies of tourism by the local population.

Increased local employment is frequently promised by the tourist industry, yet the employment provided by tourist services often fails to offset the loss of previous self-support by local people or the higher prices caused by dependence on imported goods, land speculation or inflation of the local economy by tourist dollars.

Cultural impacts are even greater. The yearly influx of 30 million tourists to Spain outnumbers the entire population of the country—so many that Spaniards often feel like strangers in their own country. Catering to the demands of pleasure seekers rather than the needs of the indigenous people creates communities unable to fulfill their own needs—whether Aspen, Colorado, Waikiki Beach or Tahiti. Destruction of indigenous values and culture has brought resentment, anger and violence from both sides, loss of autonomy, dignity and social cohesion among host people as well as their prostitution (in both the direct and general sense of the word). Impacts on tourists themselves include dependence upon commercialized merchandising of mechanized "enjoyment" and substitution of superficial visual experience for deep, intimate interaction with places and people.

More people and fewer resources ensure that the economic surplus that supports our tourism patterns will soon be a thing of the past. Dependence upon tourism—already a relatively unsteady economic base—as a mainstay of any economy is increasingly foolhardy. New patterns of travel and of dealing with the real needs and desires underlying tourism are needed and are possible.

The Premier of Prince Edward Island, Canada, has instituted a re-evaluation of tourism there. Write to:

Keith Wornell, Secretary
Treasury Board
Box 2000
Charlottetown, Prince Edward Island
Canada

See also:

"Tourism and Development: The East African Cause," John S. Marsh, Vol. 5, No. 1, December, 1975 of
***Alternatives* ($4/yr, quarterly)**
Traill College, Trent University
Peterborough, Ontario
Canada

***Tourism & Socialist Development*, I. G. Shivji, 1973**
Tanzania Publishing House
Dar Es Salaam
Tanzania

BED AND BREAKFAST

Motels are becoming less and less desirable solutions to travel accommodations. Although they provide low hassle, easy access and predictable places to stay, that same predictability means no experience worth traveling for—if you've tried one you've tried them all!

Guest houses or "bed and breakfasts" provide the varied experience and the human contact that standardized motels lack. Whereas an investment of $7,000 to $13,000 per room is required for motels, it requires almost no capital investment for people to rent out one or two extra rooms in their homes. At the same time, such accommodations cost travelers less and spread out the income within the community. Guest houses allow better off-season use of the facilities, more individualized accommodations and entail much less risk and impact where tourism levels are likely to decline or fluctuate.

In almost every European city travelers arriving at the railroad station will find an information booth that directs them to the kind of accommodation they want in the part of town they wish. Guest house switchboards operated successfully at Expo in Montreal and Spokane. The small town of Inverness, California, at the edge of the new Point Reyes National Seashore, has proposed a bed and breakfast switchboard as an alternative to ugly and expensive commercialized accommodations that couldn't be supported by local water and sewage conditions. Guest house guidebooks are another way to give people access to what is available in an area. Present ones, such as *Europe on $5 a Day*, have been very profitable as well as useful to thousands of people.

Another long-lost joy of traveling is staying at inns rather than hotels. Inns are not quick stop-overs for hurrying travelers but are to be enjoyed themselves! Often in beautiful settings, always with unique, cozy, personal rooms, fine home cooking and personalized hospitality, small inns treat guests as *guests*. Distractions such as TV and telephones are usually absent, but you may be treated by the owner's violin instead.

For a listing of places in Northern California see "The Friendly Inns of the Mendocino-Sonoma Coast" in *Sunset Magazine*, October 1975. There is also a new book coming out on old inns and eating places of the Northeast:

***The Inn Book*, Kathleen Neuer, Vintage Books, 1976**
Random House
201 E. 50th St.
New York, NY 10022

In Scandinavia dormitories at universities are frequently turned into low-cost hotels during summer tourist seasons. Hostels for all ages with simple dorm space provide extremely cheap and low-impact ways of travel. Both are beginning to appear in the U.S. Campgrounds are often even less expensive, although few exist yet in the middle of U.S. cities as they do in Europe. For membership information and guidebook to youth hostels write:

American Youth Hostels
National Campus
Delaplone, VA 22025

TRANSPORTATION

Because of extremely low fuel costs of the recent past and our resulting dependence on automobile and air transportation, we have tended to give in to the urge to spend whole vacations traveling between places rather than spending time in one place. Slower, simpler and cheaper transportation systems, such as boats, trains, buses, hitchhiking, walking and biking, put us in closer contact with the people and places we visit—often making the travelers' lives less different from their hosts. Most Americans find it difficult to imagine traveling without a car—yet it can be a blessing. We traveled all over Japan for two months by train—never planning ahead, not knowing the language or the geography well, yet always arriving at the station to find a train going where we wanted to go within ten minutes. It's simply a question of developing the systems. See *Not Man Apart*, October 1975, for a good article called "Let's Get the Railroads Moving Again."

Slower travel also means we can find "far away," uncrowded places closer to home. Why not establish a bus system convenient for rural work and recreation? This could be done on a regular basis or as the needs arose. During the winter in many places ski buses operate on weekends taking skiers up to the major ski areas. The same could happen for fishing, hiking, apple picking or going to the beach. New systems are being tried, such as identifying arm-bands and bumper stickers, to make hitchhiking more safe, while rideboards on campuses and radio stations help people get where they want to go. For a $10/year membership (obtained by sending two valid IDs, one with picture) the People's Transit has a toll-free number to hook people up with rides all over the country.

People's Transit
P.O. Box 8393
Portland, OR 97207
800-547-0933

MAKE WHERE YOU *ARE* PARADISE

PLANTING HAPPINESS

1913 in Provence. Barren, colorless land. Most villages were abandoned, their springs gone dry. In one village, people made charcoal and it was an unhappy life: greed and rivalry among neighbors, everyone trying to escape the area. Hot, dry winds blew through the treeless landscape, which was turning to desert from lack of vegetation and water.

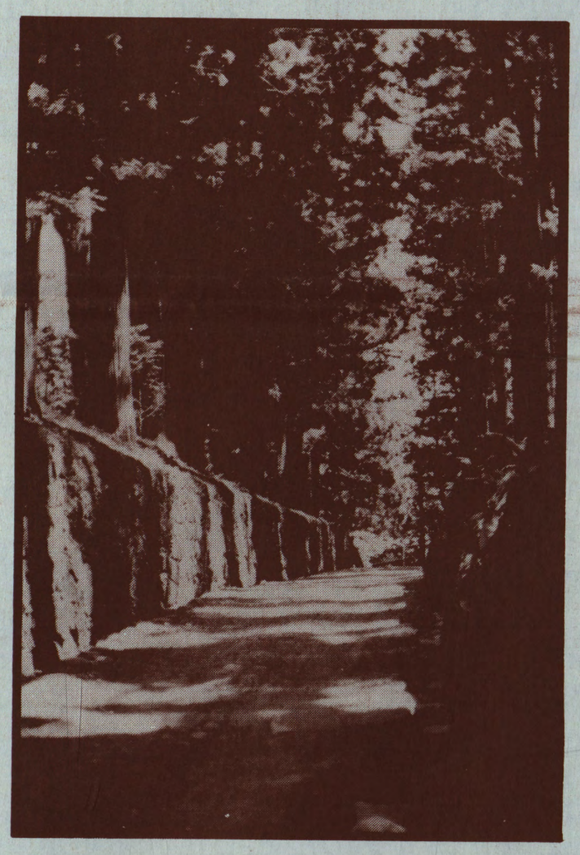
In the hills, through the valleys, walked a shepherd with his flock. In a bucket each day he carried 100 acorns soaked the night before in water. With an iron rod as thick as your thumb he would poke a hole in the earth, carefully plant the acorn, and walk on. 100 each day. Jean Giono came across the shepherd, Elzard Bouffier, when hiking in the Alps that year before WWI. In three years' time the 55-year-old man had planted 100,000 acorns. 20,000 had taken, and he expected to lose half of these.

"There remained 10,000 oak trees to grow where nothing had grown before."

Seven years later, Giono returned to the area and went with Bouffier for a walk amongst ten-year-old oaks," . . . beech trees as high as my shoulder, spreading out as far as the eye could reach . . ." and birches planted where there was moisture in the valleys. In 1945 Giono returned again:

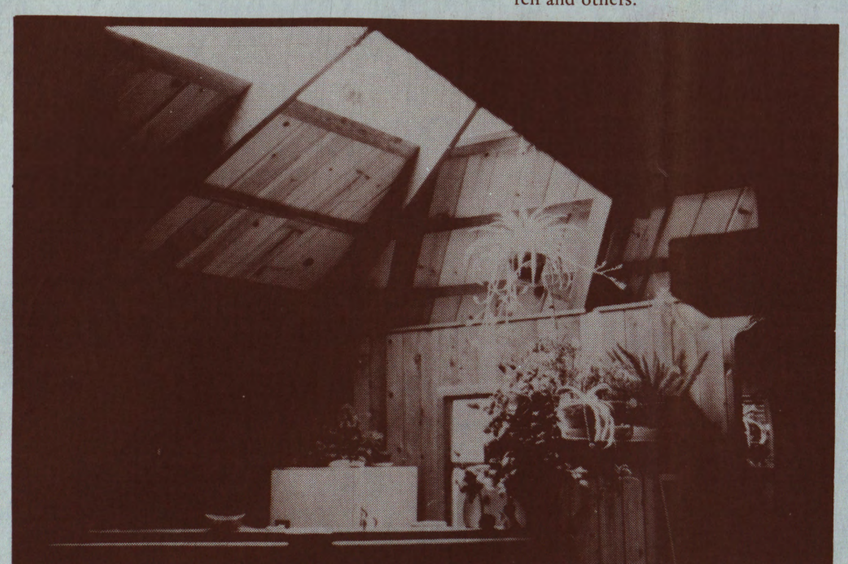
Everything was changed. Even the air. Instead of the harsh dry winds that used to attack me, a gentle breeze was blowing, laden with scents. A sound like water came from the mountains; it was the wind in the forest; most amazing of all, I heard the actual sound of water falling into a pool. . . . The old streams, fed by the rains and snows that the forest conserves, are flowing again. Their waters have been channeled. On each farm, in groves of maples, fountain pools overflow onto carpets of fresh mint. Little by little the villages have been rebuilt. People from the plains, where land is costly, have settled here, bringing youth, motion, the spirit of adventure. Along the roads you meet hearty men and women, boys and girls who understand laughter and have recovered a taste for picnics. Counting the former population, unrecognizable now that they live in comfort, more than 10,000 people owe their happiness to Elezard Bouffier.

***The Man Who Planted Hope and Grew Happiness*, Jean Giono, 1967, 16 pp., $.75 from:**
Friends of Nature
c/o Miss Ellen R. Riggs
92 Arlington St.
Winchester, MA 01890



All our earth was once a paradise . . . and paradise begins at home.

The words and sketches of early travelers and settlers are filled with amazement at the beautiful, life-filled places—some of the same places which now stand as barren rubble and pavement. Energy and money spent traveling to good places to escape the ugliness of our cities is energy and money enjoyed once and used up, in the process often destroying these good places.
Energy and money spent making where we live beautiful gives us a paradise we can enjoy every day and one which remains for the enjoyment of our children and others.



INSIDE

Start with furniture—or maybe without! Many people would laugh at us, filling our rooms with big furniture to bang ourselves on. The Japanese live elegantly on reed-matted floors and can change the use of their rooms in seconds. Persians furnish their rooms with beautiful carpets and pillows. Plains Indians made folding backrests for floor sitting, and your local guru can show you how to sit quite comfortably on the floor. The easiest way to make a room seem spacious is to take out the furniture! If you want furniture, make it! Take a look at:

***Nomadic Furniture*, James Hennessey and Victor Papanek, 1974, $4.95 from:**
Random House
201 E. 50th St.
New York, NY 10022

The things in that book are easy to construct and easy to move. For fancier, more far out stuff, much of it chain saw wood carving:

***Creating Modern Furniture*, Dona Z. Meilach, 1975, $6.95 from:**
Crown Publishers, 1975
419 Park Ave.
New York, NY 10016

URBAN HOMESTEADING

Several cities are now experimenting with urban homesteading—selling abandoned houses for a buck to people committed to fixing them up. In most programs taxes and increased assessments are waived for up to ten years.

***Urban Homesteading: Process and Potential*, 1974, $2.50 from:**
National Urban Coalition,
2100 M Street, N.W.
Washington, DC 20037

***How to Rehabilitate Abandoned Buildings*, Donald R. Brann, $3.50 from:**
Easi-Bild Pattern Co., Inc.
Briarcliff Manor, NY 10510

CDC's

Want to turn an unsightly vacant lot into a playground or vest pocket park? Want to help in the planning for your neighborhood? Many communities now have community design centers who will provide architects, landscape architects and planners free of charge to people who could not otherwise afford them. Kind of like legal aid. Call the local chapter of the American Institute of Architects for the CDC nearest you or write:

Community Services Department
American Institute of Architects
1735 New York Ave., N.W.
Washington, DC 20036

BUILDING

Renovating an old house or building a new one can be an especially valuable learning experience—and an inexpensive way to have your own kind of paradise. The best seller, *Handmade Houses*, has lots of beautiful examples of places people have built to reflect their own spirits, often scavenging and recycling materials:

***Handmade Houses*, Art Boerike and Barry Shapiro, $5.95 paperback from:**
The A&W Visual Library
95 Madison Ave.
New York, NY 10016

Ken Kern has some valuable insights on owner-building:

***The Owner-Built Home*, Ken Kern, 1975, from:**
Scribners
597 5th Avenue
New York, NY 10017

Eugene Eccli's new book can get you well into energy-conserving ideas:

***Low-Cost Energy Efficient Shelter for the Owner-Builder*, Eugene Eccli, Ed., 1976, $10.95 from:**
Rodale Press
Emmaus, PA 19049

GARDENS

If our homes themselves were more pleasant and peaceful perhaps our needs to "get away from it all" would be lessened. It has always seemed a shame that our culture didn't follow the European or Latin American tradition of building our homes around courtyards. The outside walls buffer the noise and smells of even the most urban areas so that the inner garden or court—no matter how simple—stays peaceful and private. Many old buildings can be adapted with additions or gutted to include courts. Where it is difficult now to add them high hedges, walls or bushy trees planted along the road in most suburban areas would effectively turn useless front lawns into secluded spots.

Talk to your local nursery person or someone in the horticulture department at the community college for ideas and information on good species for your conditions and purposes.

A good beginning book on landscaping is:

***Landscape Architecture*, John Simonds, 1961, from:**
McGraw Hill
1221 Avenue of the Americas
New York, NY 10036

Gardens are an important part of makany place a paradise! And as everyone knows, the Japanese are masters at feasting the eye and the soul, making the commonplace seem beautiful and turning even the tiniest of spaces into flowering gems with the merest of means. Take a look at:

***The World of the Japanese Garden*, Loraine Kuck, 1968, from:**
Walker & Co.
720 Fifth Ave.
New York, NY 10019

Vegetable gardens are taking over many tiny urban back yards and suburban vistas—fun, healthful, economical and profitable. Most varieties are beautiful enough to be considered worthy of the front lawn! Beans and peas or grapevines can climb up your south wall, shielding it from the sun—natural air-conditioning that pays for itself!

If you don't have any space of your own (not even a window ledge for a box of spices and lettuce?) try to find a community garden in your area. Most cities seem to have them these days. There's nothing like fresh broccoli for dinner.

CITY TREES

Trees and vines shade, cool and soften *any* environment. They help clean the air too. Here's a useful book for greening up urban environments:

***Plant a Tree*, Michael A. Weiner, 1975, $6.95 from:**
Macmillan Publishing Co.
866 Third Ave.
New York, NY 10022

Many communities that now enjoy beautiful, cool, tree-shaded streets owe them all to a single Arbor Day—*one weekend* when the whole community got out and planted trees! Those who plant trees now will have similar streets twenty years from now, leaving a lasting legacy for our grandchildren. If we plant fruit or nut trees there will always be a food source handy—as well as blossoms in the spring. For detailed information on the values and how-tos of planting and plants, see Tom Bender's "Free Tree Energy," *RAIN*, Nov. 1975 (Vol. 2, No. 2).

 RAIN Magazine 2270 N.W. Irving, Portland, OR 97210

GOOD-BYE TO T

TOWARDS A SEWERLESS SOCIETY

"Common sense is turning out to be right—bodily wastes should not be put into the public water supply."

Two major developments are moving us rapidly towards abandoning our present sewage treatment systems and towards developing a sewerless society. As our population grows and our resources diminish, the monetary costs and health hazards of our present systems are rapidly becoming unbearable. On the other hand, a whole spectrum of alternative waste handling techniques have been developed that provide more effective and less costly treatment of human wastes without increasing health hazards. Together they demand revaluation of current waste treatment policy directions.

The flush toilet is widely considered the very symbol of modern sanitation and progress, yet it entails vast expenditure of money and resources and creates widespread health and environmental problems. Adverse effects of present sewage disposal systems include the following:

HAZARDS OF WATER REPURIFICATION: Not keeping our wastes out of our drinking water requires us to spend billions of dollars in futile efforts to separate the sewage from the water and repurify it for use downstream. Present water repurification systems depend upon the addition of chlorine to the water to kill disease-causing bacteria. Though chlorination will kill bacteria, it is ineffective in preventing disease transmission by viruses, such as those that cause infectious hepatitus, polio, intestinal flu, and other related diseases. Such water-borne viruses get into our water supply primarily from our body wastes. Recent studies in the Mississippi River Basin indicate that chlorination used to kill bacteria from toilets upstream combines with the bacteria and chemically polluted water to produce carcinogenic substances in the drinking water. Chlorination is also suspect as one cause of heart disease.

Chlorination is a violent form of "controlling" disease and, like antibiotics, is very likely to be more dangerous to us in the long run than to bacteria. Both chlorination and antibiotics merely speed the creation of more resistant and dangerous forms of the disease transmitters they attempt to control. This has already resulted in the need for increasingly massive doses of chemicals to control the bacteria and is reaching the point where both the diseases and their controls are becoming increasingly deadly to our own survival.

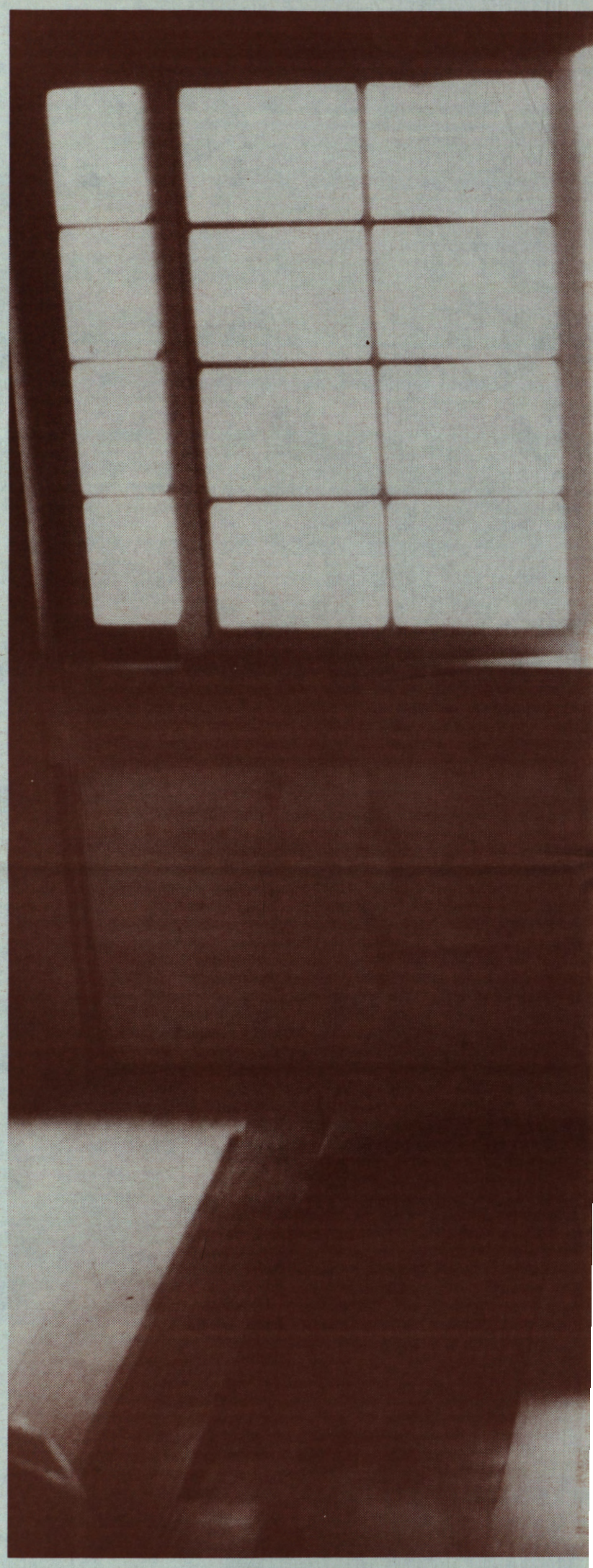
Aerosol propellants are being blamed for damage to the atmospheric ozone layer that protects us from harmful ultraviolet radiation, yet there are indications that greater blame lies with the vast quantites of chlorine added to our water supplies. Chlorine reacts with our waste water to produce volatile chloroform, which enters the atmosphere where it can react to destroy ozone. When we realize that Washington, D.C., alone uses more than three and a half million pounds of chlorine every year, the amount of freon-type aerosol propellants that have been used are relatively insignificant. The simplest way of avoiding these hazards is to keep our sewage out of our water supply in the first place.

WATER USE: Water is becoming increasingly scarce in many parts of the country due to increased population and consumption, changing climate patterns, pumping of underground water tables and vast demands for irrigated agriculture and energy production. In one year, each of us uses and contaminates more than 13,000 gallons of water to carry away only 165 gallons of body waste—using five gallons of water every time we flush the toilet. Half of the water used in every home is used merely to carry away sewage. Such practices may be impossible to continue—the 1985 sewage flow estimates of Prince George's County, Maryland, exceed available water supplies for the area by more than 321 million gallons per day! The creation of expensive water reservoirs, aquaducts, water purification systems and the diversion of needed water from agriculture and other uses can be avoided by use of sewerless systems.

ENORMOUS COSTS FOR SEWAGE COLLECTION AND TREATMENT: A task force led by Ralph Nader found that in spite of expenditure of more than $3.5 billion on new sewage treatment facilities over the last 15 years, the level of filth has not been reduced in a single major body of water. The Environmental Protection Agency estimates that more than $38 billion—in addition to all past and present investment—is needed to clean up our sewage. And that wouldn't solve any of the eutrophication of our rivers and lakes. Complete sewage treatment for one small river basin—the Potomac—will cost more than $1.5 billion in addition to paying for present investment and the cost of replacing aging sewers. And installation of new sewers (not including treatment) to replace failing septic tanks for 1200 suburban homes in the Maryland suburbs of Washington, D.C., will cost more than $4,400 per home.

Simpler and less expensive means are available, but being fought by sanitary engineers who face loss of commissions on sewage treatment plants. Muskegon, Michigan, has installed a system for recycling sewage onto farmland instead of dumping it into the water supply. By comparison with a conventional chemical water treatment system such as at Salt Creek in Chicago, the Muskegon system costs $1 per gallon of capacity to build vs. $1.50 per gallon for Chicago, and only 12¢ per thousand gallons to operate vs. 40-80¢ per gallon for Chicago. In addition, the Muskegon system is expected to generate $240,000 to $360,000 in agricultural profit per year by 1990, plus revenues from sludge sale amounting to $300,000 per year.

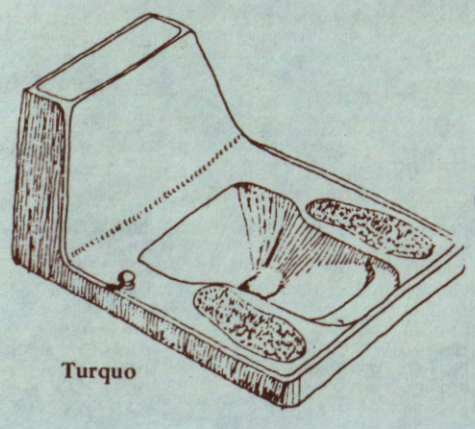
The energy consumption of present sewage treatment processes are considerable—plans to enlarge the Blue Plains sewage plant in Washington, D.C., call for use of 2 million kwH of electricity, 500 tons of chemicals and over 100,000 gallons of fuel oil per day to treat 309 million gallons of sewage contaminated water. If we were to stop using our drinking water to dilute and transport that sewage, it would reduce the volume to be processed by NINETY-EIGHT PERCENT!



SQUAT!

The traditional squatting posture is common throughout the world and has repeatedly been demonstrated by medical authorities to be healthier and easier than sitting on a can as we do. (See *The Bathroom*, by Alexander Kira, 1966, Bantam Books, $1.45, for the low-down.)

Squat toilets are especially better than our conventional ones where public toilets are not kept clean, as there is no contact with the toilet itself. Squat designed flush toilets are available for applications connected to central sewage systems.



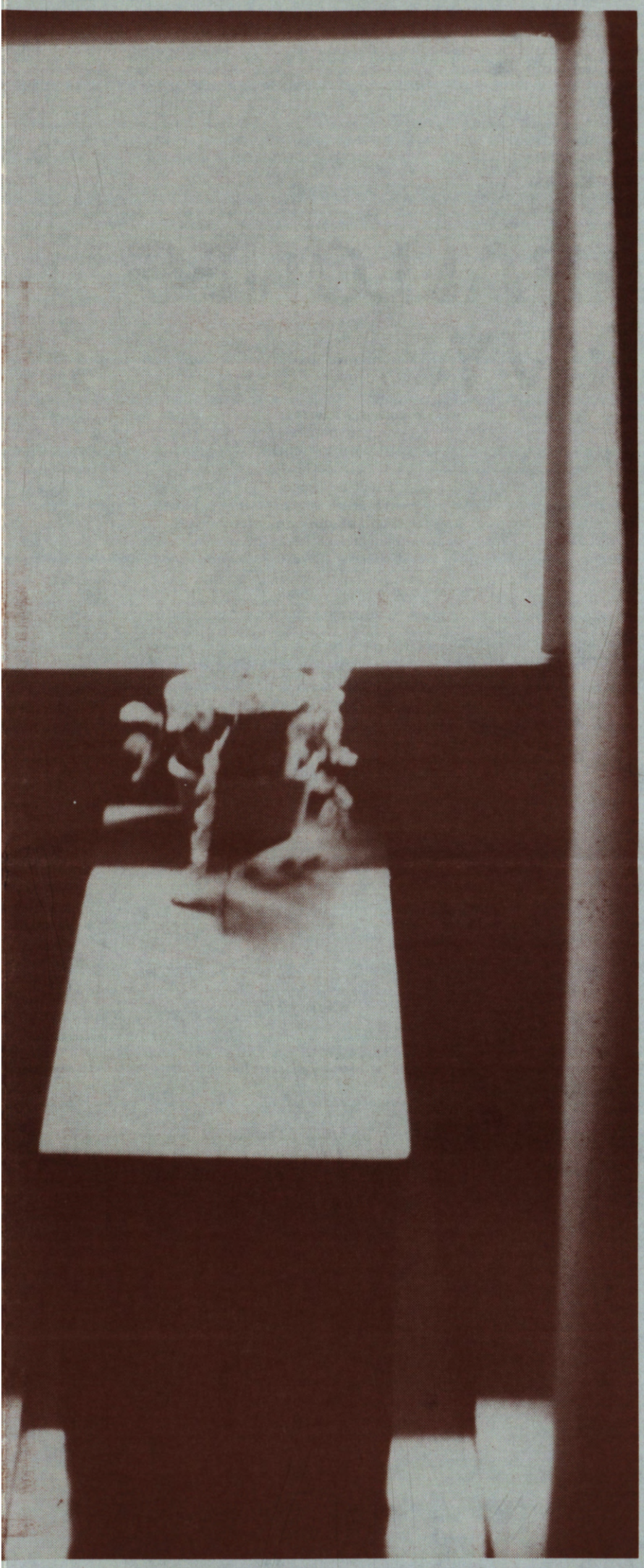
Turquo

Any sewage recycling system that puts garbage and human waste directly back on the land would be frowned on as wasteful by people in many countries. A large percentage of the food energy we eat is passed on undigested in our wastes, and garbage fed daily to pigs is hardly less appetizing than when served on our plates. In India, in South America, in China and in some parts of Europe, privys are designed as masterpieces of ecological sanitation. They have two entrances—the normal one and a second one at the rear for pigs. It may be a little disturbing sitting there with nothing but a hole in a plank separating your more delicate parts from several hundred

PIGGY-POTTY

pounds of hungry bacon. Any apprehensions are quickly dispelled as you realize that the fruits of your effort are being highly appreciated. The pigs view us, of course, as we view honey bees—as someone to be thanked for going to so much work to prepare fine food delicacies for us!

HE FLUSH TOILET



AGRICULTURAL LOSSES: Our sewage is composed of nothing other than our food, which is in turn our agricultural production. The failure of our present sewage treatment processes to return the nutrients to the soil that our agriculture removes brings about the present need to use vast amounts of artificial fertilizers. By 1966 Illinois alone used more than 600,000 tons of inorganic nitrogen per year—most of which is produced from natural gas, which is certain to become prohibitively expensive in the not-too-distant future. Although trace amounts of many elements have been shown to be necessary for both plant and human health and are removed from the soil with our harvests, most of today's fertilizer practices ignore return of trace elements to the soil. What was taken from the soil is present in our sewage, and return of sewage sludge to the fields is probably the easiest way to retain the health and productive capabilities of the soil. Sludge provides for both normal fertilization and trace elements, as well as humus. Humus is necessary in the soil for water retention and microbial life, important both in disease resistance in plants and in conversion of minerals to biologically active forms.

ENVIRONMENTAL QUALITY: Other environmental effects of our present toiletry practices are pervasive. On one hand we are running out of room for landfill disposal of sewage sludge—the D.C. Blue Plains Plant produces more than one million pounds of sludge per day. Alternatives such as incineration expose area residents to health risks from airborne lead, mercury, particulate matter and oxides of sulphur and nitrogen. Nitrates formed from nitrogen in urine, of which only 50% is removed in secondary sewage treatment, causes infant cyanosis. Dissolved nutrients not removed from water by sewage treatment lead to eutrophication of waterways and destruction of aquatic life. Health hazards are created by leakage of raw sewage from aging sewage lines, and the dumping of millions of gallons of raw sewage into our rivers from the power failures, equipment breakdowns, pipe failures, employee strikes,and by-passing during flooding or high water to which our complex and centralized systems are vulnerable. It can be questioned whether our pristine sanitary toilets offset the health hazards of our rivers and lakes. Hepatitis and heavy metal poisoning from shellfish in polluted coastal waters are becoming more frequent, as sewers pass on human wastes and give opportunity for industrial plants to dump heavy metals and other dangerous compounds into our water supplies unobserved.

The solution to these water supply and sanitation problems seems elementary. Body wastes should not be put into the public water supply, and sanitary decentralized sewage processing should recycle our bodily wastes back onto the land.

Several new kinds of toilets and methods of sewage treatment that eliminate the use of large quantities of water are now available that can offer us an opportunity to decentralize human sanitation in safe and effective ways. They promise to open up new freedom in use of land for building houses and factories where extension of sewers or use of septic tanks has not been feasible and to reduce the costs and problems of sewage treatment in the future by an order of magnitude.

These new systems are of several different types:

- *Composting toilets*—that use no water or energy and depend upon the heat of aerobic composting to evaporate the moisture and destroy pathogens.
- *Biological toilets*—using enzymes and both aerobic and anaerobic bacteria to dissolve wastes which are then usually disposed of in a drain field.
- *Oil-flushed toilets*—which use mineral oil to flush the toilet and carry wastes to a holding tank where gravity floats the oil to the top for filtration and recirculation.
- *Holding tank system*—retaining body wastes in a tank that is periodically pumped by a vacuum tank truck.
- *Vacuum systems*—that use difference of air pressure instead of water to move wastes through pipes to central collection or processing points.
- *Incinerating toilets*—fired by gas, oil or electricity that reduce body wastes quickly to a sterile ash.
- *Aerobic tanks*—a variation on traditional septic tanks that use electric pumps to mix air into the tanks to improve digestion. Can be combined with low-flush toilets.

These systems provide a range of useful sewage treatment processes adaptable to many varied local conditions and needs and open up new opportunities to resolve the problems of our sewer society.

"The Faulty Technology," Ron Davis, P.O. Box 23, Cottage Grove, OR 97424.
"The Sewerless Society," Harold Leich, *Bulletin of Atomic Scientists*, Nov. 1975.
"Another Look at the 5-Gallon Flush," Witold Rybczynski, *The Canadian Architect*, Aug. 1975.
"Of Human Waste and Human Folly," Jeff Stansbury, *The Living Wilderness*, Spring 1974.
"Good-by to the Flush Toilet," Robert Rodale, *Organic Gardening and Farming*, Nov. 1971.
"Living Lightly," Tom Bender, 2270 N.W. Irving, Portland, OR 97210, Oct. 1973.
"Flush Toilets," Neil Seldman, *Washington Star-News*, Dec. 22, 1974.

GREEN GULCH PRIVY

Toilets can be beautiful as well as sanitary and can create fertilizer instead of pollution. This squat-style compost privy at the Green Gulch Zen Farm outside of San Francisco is proof to anyone who has used it. Sawdust, peat moss or leaves are kept in the box in the center and a handful dropped into the privy after every use to cover and absorb the wastes. Kitchen wastes are also added, the contents composted and taken to the garden for use as fertilizer.

CAN-PEE AND OTHER DELIGHTS

Helga Olkowski, one of the developers of biological pest control programs for several California cities, constantly shocks male audiences when she talks about fertilizing the amazing gardens at the Farallones Urban House in Berkeley. She merely placed a 5-gallon can with a funnel sticking into it in the bathroom for men to use. Diluting the urine 5 to 1 with water prevented it from burning out the plants, and it was used directly as a high-nitrogen fertilizer. Composting would normally lose much of the nitrogen, and keeping the urine separate from the compost made composting easier! Other simple you-can-do toiletry changes include the legendary brick-in-the-tank idea. It saves 34 million gallons of water per year in Cherry Hill, N.J., where free bricks were passed out to every home to reduce the water used with every toilet flushing. Bending the float arm will do the same, and save bricks. Or you can remember to flush the toilet when it needs it, not every time you use it.

Toto Water Saver

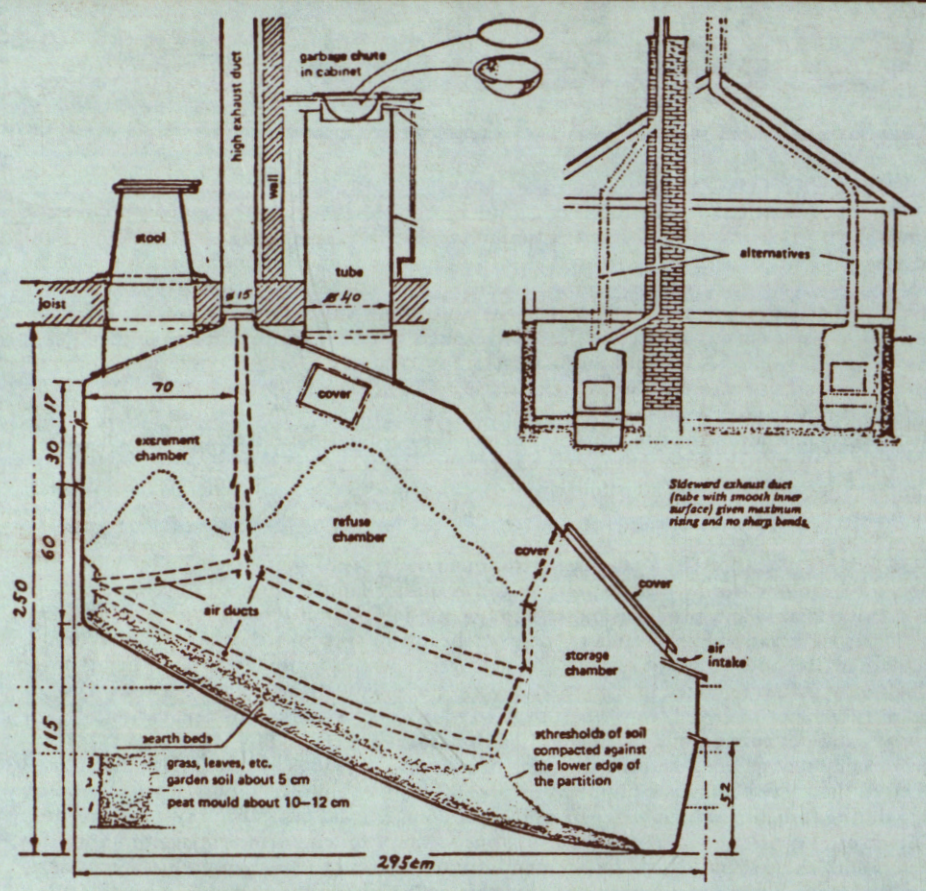
FLUSH-LESS TOILETS

One of the more clever refinements of conventional toilets is now in common use in Japan. It uses only 2-1/2 gallons of water for a normal flush and, by turning the handle the other direction, uses only one gallon when less water is needed. The water refilling the toilet tank flows through a spout in the top of the tank into a basin for hand washing ing, then fills the tank for the next flush.

Saves water, saves space and eliminates the need for a separate wash basin!

 RAIN Magazine 2270 N.W. Irving, Portland, OR 97210

THE CLIVUS TOILET



THE CLIVUS TOILET

The Clivus composting toilet was invented in Sweden in 1939 to provide sanitary sewage treatment for rural homes where sewers and septic tanks were difficult to install. It has been commercially available in a refined design in Scandinavia since 1964 and in the U.S. since 1974.

The Clivus is a large, sloped-bottom fiberglass container about 9 feet long and 6 feet high with three connected interior compartments. The first is positioned below the toilet stool and receives toilet wastes on a layer of peatmoss, garden soil and grass or leaves. As this mixture slowly slides down the sloping bottom, kitchen wastes are added through a chute into the second compartment, and the whole mixture emerges a year later at the back of the third compartment as a dark, fine compost ready for garden use. All three compartments have air ventilation tubes running through them which then exhaust through a roof vent as the composting heats the air in the container.

HEALTH CODES: Most state health codes were written before the development of adequate sewerless toilet systems and have caused difficulties in gaining approval for use of such systems. That situation seems finally to be changing. Maine, New Hampshire and Vermont have granted blanket approval for installation of Clivus toilets, and many other states are allowing experimental installations for evaluation. Oregon recently agreed to 100 experimental installations of compost toilets, and California is in the process of developing a new rural health code to deal comprehensively with sewerless waste systems. Clivus installations have been made in Maine, Vermont, New Hampshire, Connecticut, New York, Pennsylvania, Ohio, Virginia, Arkansas, Mississippi, North Carolina, Minnesota, Wisconsin, Iowa, Indiana, Colorado, Montana, California, Oregon, Washington, British Columbia, Quebec and Manitoba.

Maine has revised its health and plumbing codes to incorporate various kinds of dry toilets. Some improvement in requirements for drain fields for other household water still needs to be made, but the Maine legislation has become a model for other states to follow. Copies can be obtained from Donald C. Hoxie, Director, Division of Health Engineering, Department of Human Services, Augusta, ME 04333.

Health tests have been performed in the compost produced by the Clivus in Finland in 1968, in Sweden in 1972 by the National Bacteriological Laboratory, and in Cambridge, Massachusetts, in 1975. It is currently being tested by the U.S. Forest Service and the Center for the Biology of Natural Systems at Washington University, St. Louis, MO 63130.

DO-IT-YOURSELF . . . CAREFULLY!
We built a homemade Clivus out of plywood and fiberglass back in 1972 in Minnesota to see if it really would work. We've since met and talked with people who have made Clivi and compost privies out of ferro-cement, tarred wood, fiberglass, and about anything else imaginable. Len Dawson, founder and director of Housing Assistance Service (HAS) in Seattle, Washington, has built four Clivi. These ferro-cement models cost only $100 each in materials vs. $1200 for the commercially available fiberglass version. Cast-in-place like a swimming pool, the sloping bottom requires normal concrete rebar. The sides and top use 1/2" non-galvanized welded wire mesh—concrete won't adhere to galvanized—from f-c boat builders/suppliers. Xypex (look under "waterproofing" in the Yellow Pages) was used to keep organic material in and water out of the Clivus. This product, normally mixed with the concrete, can also be used in a more concentrated form as a slow-curing plaster to putty into cracks or as an "ultra-plug" which sets 30 seconds after being mixed with a catalyst.

The most recent HAS Clivus, built into Carl Nyblade's home in Friday Harbor, Washington, has toilets on both the 1st and 2nd floor connected to a plywood-particle board tank internally coated with fiberglass. (HAS, 4615 Bagley Ave., N., Seattle, WA 98103).

Davis Straub, Clivus Multrum dealer for Washington state, cast a ferro-cement Clivus in place at Pragtree Farm in Arlington, Washington, and topped it with a beautiful cedar outhouse, that looks out on organic vegetables from amid the tall firs. This Clivus was pumped out and painted with Xypex concrete waterproofing to keep groundwater out in this high water table area. (PRAG, 747-16th Ave., E., Seattle, WA 98112)

"Examination of the Operating Characteristics of a Composting Installation for Organic Household Wastes," by Carl R. Lindstrom, 1969, 30 pgs., prepared for the Institute for Heating and Ventilating Technology, Royal Technical Institute, Sweden, available from Ms. Abby Rockefeller, Clivus Multrum USA. 14A Eliot St., Cambridge, MA 02138.

"A Simple Process for Composting Small Quantities of Community Waste," by Rikard Lindstrom, in *Compost Science, Journal of Solid Wastes and Soil*, Spring 1965, pp. 30-32.

"The Clivus Toilet—Sanitation Without Pollution," by Lawrence D. Hills, in *Compost Science, Journal of Waste Recycling*, May-June 1972, pp. 8-11.

"Effect of Treatment at the Sewage Works on the Number and Types of Bacteria in Sewage," in *The Journal of Hygiene*, 47(3):303-319 (Sept. 1949).

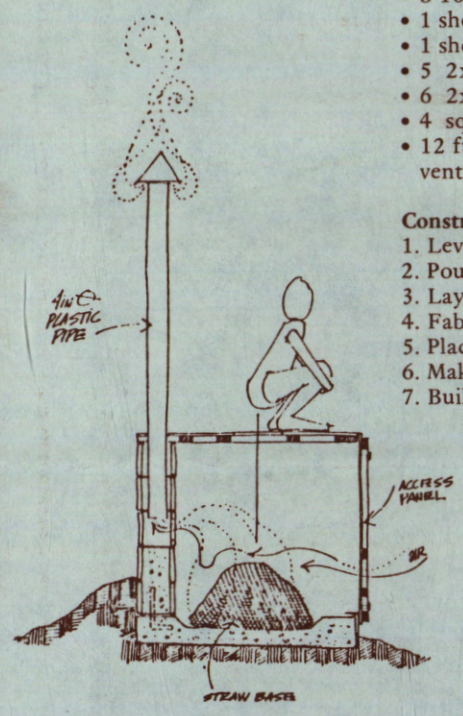
"Survival of Selected Enteric Organisms in Various Types of Soil," in *American Journal of Public Health*, 41(1): (Jan. 1951).

The Farallones Composting Privy is one of the simplest designs we've seen for careful, sanitary composting of human waste. We've used several of them—both the elegant one at the Green Gulch Zen Farm shown on the other side of this poster and the ones at the Farallones Rural Site in Occidental. The design can be built for about $100 in materials and is presently completing careful testing by California health authorities as well as by entomologists on the Farallones staff. The need occasionally to turn the compost with a pitchfork is also one of the privy's more helpful features—heavy use that would tend to overload many systems can easily be corrected with addition of sawdust and turning of the compost.

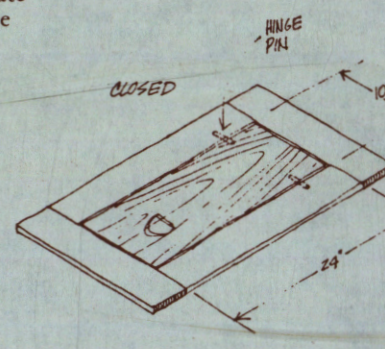
More detailed background, co
information is available in *Te
Composting Privy*, $2 from F
Coleman Valley Rd., Occiden
above are for the working par
construction of the rest is up
as the Green Gulch privy or a
ese privys are traditionally or
with a low window just at squ
own carefully-designed view.

THE FARALLONES PRIVY

Materials Needed:
- 2/3 cubic yards concrete for slab and grout
- one sack mortar
- concrete blocks:
  40 8x16 stretchers
  20 8x16 corners
  8 half blocks
- 40 linear feet rebar 3/8", 4' lengths
- 8 10" foundation bolts
- 1 sheet 4'x8'x5/8" plywood
- 1 sheet 4'x8'x3/8" plywood
- 5 2x4x8' redwood plates
- 6 2x2x8' runners
- 4 square feet insect screening
- 12 ft. 4" diameter plastic pipe for vent



Construction Sequence
1. Level site, layout, place vertical rebar
2. Pour slab
3. Lay blocks, cure 24 hours
4. Fabricate top, access panel
5. Place vent pipe
6. Make squat plate
7. Build enclosure

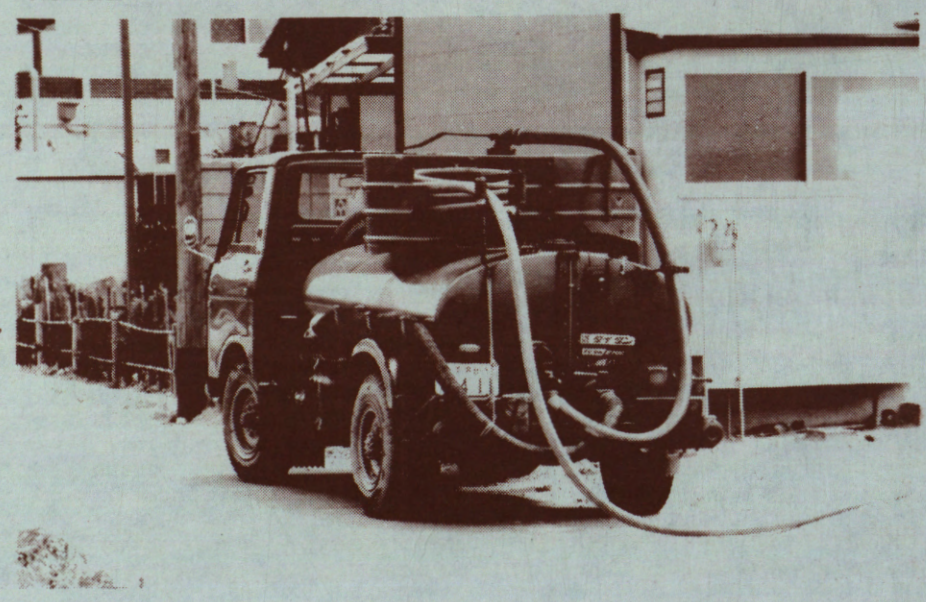


HONEY DIPPERS

Japan is one of the most cleanliness-conscious countries in the world and is remarkably free from sewage odors, flies and other sewage-related problems. Yet only 17% of Japanese households are hooked up to sewers, and septic tank systems are virtually impossible because of land shortage, building density and paddy agriculture. Most toilets are connected to holding tanks that are pumped out periodically by vacuum pump equipped trucks. These highly-evolved descendents of the lowly honey-dippers or night-soil collectors, often equipped with chrome wheels and trim and shining purple, red or blue paint jobs, scarcely reveal their lowly origins!

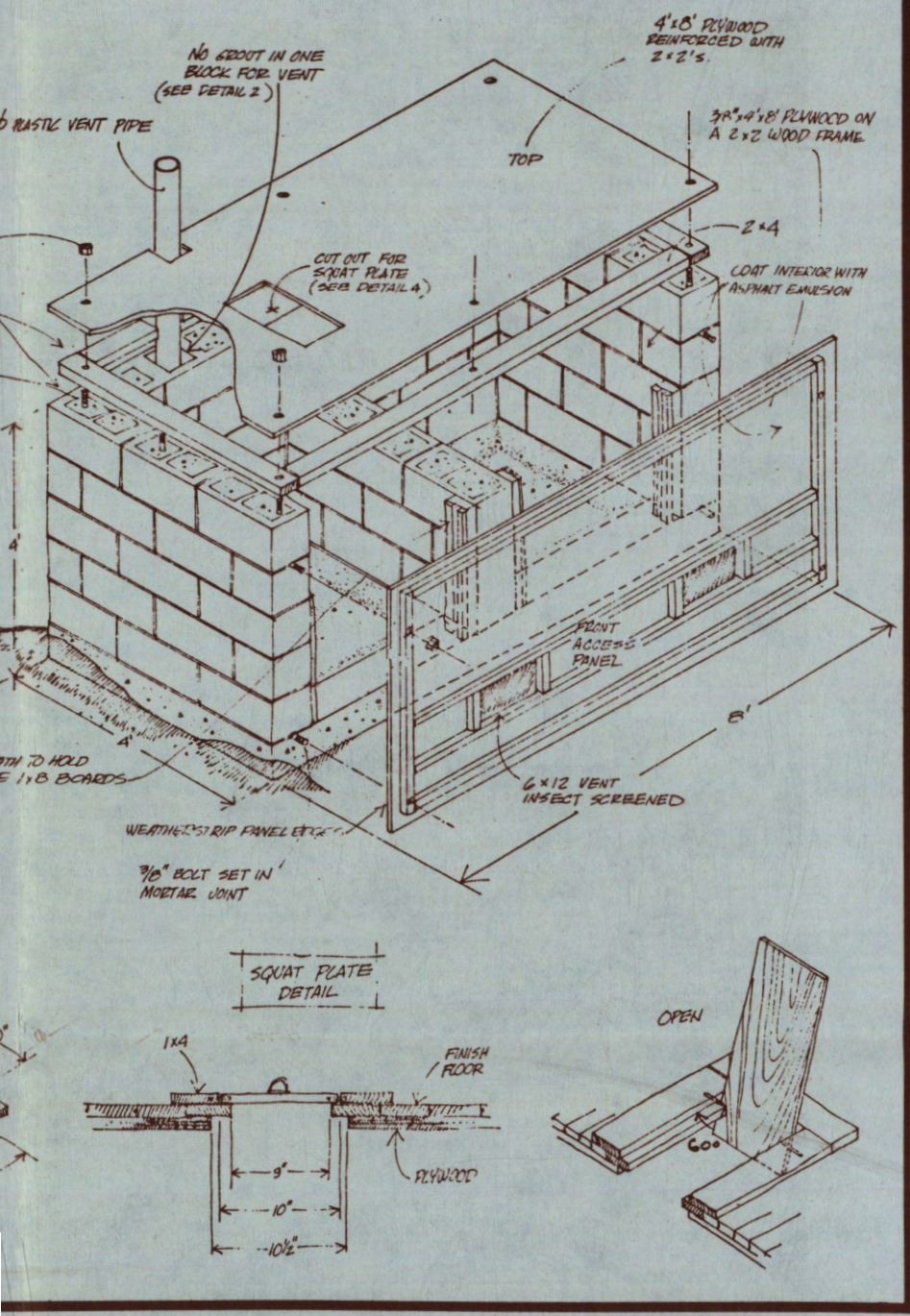
Truck collection of undiluted sewage in Japan has avoided the construction of vast sewer systems, massive water supply, sewage treatment, water repurification and fertilizer production facilities necessary in American sewage systems.

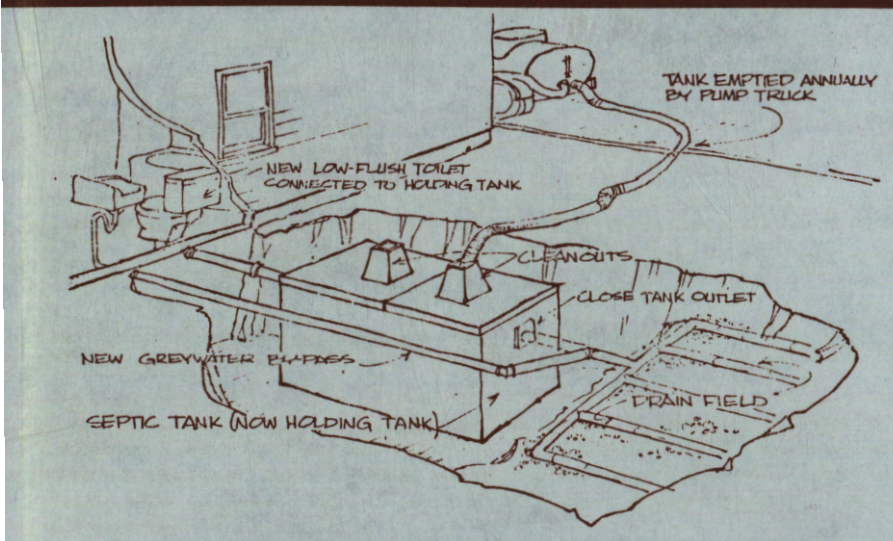
Cost comparisons suggest that sewerless systems are already becoming economically competitive with centralized sewer systems, while offering many advantages. Residents of Washington, D.C., who now pay about $30 per year for sewage service, are expected to have to pay up to $200 per year by 1980. Disregarding water savings, such changes would pay for a Clivus in six years or a Farallones compost privy in six months. Pumping a holding tank system that collects 165 gallons of waste per person per year would cost only about $50 per year per household!



mposting and construction
hnical Bulletin No. 1:
arallones Institute, 15290
tal, CA 95465. The plans
ts of the privy—design and
to you—and can be as elegant
s homey as you like. Japan-
ented to a small garden,
atting height that has its

Many health departments, used to issuing permits for sewage systems depending upon mechanical equipment for safe operation, raise valid questions about simpler, less costly systems that depend on periodic maintenance by people for safe operation. People, they say, are fallible, and few have the simple skills to manage correctly a compost system. The obvious answer is to give permits to people, not equipment! It's worked well in ensuring minimum skills and safety with automobiles—a much more dangerous situation. All it would mean for sewage systems is that those people who want to install cheaper, people-operated systems instead of more conventional ones would have to show they know how to compost!





CONVERTING SEPTIC TANKS

Many of our suburban home septic tank systems can be converted to sewage recycling operations that can recycle nutrients for agricultural fertilizer. By reducing water use in our homes by 50% and removing sewage effluent from waste water, such systems can prevent the failure of drain field operation in present home systems. Such failure of disposal systems is increasingly frequent—Lane County, Oregon, classifies 45% of its individual septic tank systems as operating unsatisfactorily, of which 30% were failures causing health hazards.

Septic tanks require pumping out every few years for disposal of accumulated sewage sludge, at a cost of $90-$150. Conversion to recycling operation consists first of separating the drain pipes from toilets from those of sinks, tubs and showers. The drainage from sinks and showers, containing no sewage, bypasses the septic tank and ties directly into the drain field, which now only has to handle half as much water as previously. The outlet from the septic tank is closed up, converting it into a holding tank for sewage from the toilets, which are replaced with one of several varieties of low-water use designs depending upon local conditions. The reduced water use in the toilets allows the holding tank to serve for longer periods—requiring pumping only on a yearly basis. The sludge removed is taken by truck to central processing plants or applied directly to agricultural fields, depending upon conditions and kinds of crops.

Conversion of existing septic systems to holding tanks is unlikely as long as water costs remain low and existing systems continue to function properly. As systems age and require replacement or repair, conversion can prove an economical and effective improvement. Installation of holding tank systems in new residential construction is considerably easier, entails very little additional cost, and is likely to become common in new developments.

SEWERLESS TOILETS

RECYCLING TOILET MANUFACTURERS

Many different kinds of water and waste conserving toilet systems are now available. The following sources can give information on equipment, costs, local distributors or construction plans, as appropriate.

Squat Toilets

Chiang Mai Squatting Plate
Mold available from:
Village Health and Sanitation Project
Ministry of Public Health
Bangkok, THAILAND

Squat Toilet Plans
Farallones Institute
15290 Coleman Valley Road
Occidental, CA 95465

Toto Squat Toilet (Flush)
Toto Toki Co., Ltd.
458 Shinozaki-machi, Kokura-Ku
Kitakyushu, Fukuoka-ken, 802
JAPAN

Turquo (Flush Squat Toilet)
Waterlo
41, Rue Censier
Paris 5e, FRANCE

Composting Toilets

Biomat (same as Mull-Toa)
Biomat Enterprises
739 2nd Street
Coeur d'Alene, ID 83814

Biu-let Composting Toilet
Bio-Utilities, Inc.
Box 135
Narberth, PA 19072

Clivus
Clivus AB
Tohstigen 6
S - 13500
Tynesoe, SWEDEN

Clivus – U.S.
Clivus Multrum, Inc.
14 Eliot Street
Cambridge, MA 02138

Eco-House
Graham Caine
Street Farmhouse
Kidbrooke Lane
Elthan, London SE9
ENGLAND

Ecol Sanitary Unit
Minimum Cost Housing Group
Brace Research Institute
McGill University
Montreal, CANADA

Ecolet
Recreation Ecology Conservation of the United States, Inc.
9800 W. Blue Mound Road
Milwaukee, WI 53226

Farallones Privy
Farallones Institute
15290 Coleman Valley Rd.
Occidental, CA 95465

Kern Compost Privy
Ken Kern
P.O. Box 550
Oakhurst, CA 93664

Mullbank
Inventor AB
Prastgatan 42
931 00 Ostersund, SWEDEN

Multrum
Scan Plan
3 Sankt Kjelds Gade
DK-2100 Copenhagen
DENMARK

Mull-Toa
Hans Kr. Nielsen
Sorkedalsveien 22
Oslo 3, NORWAY

Saniterm
AB Electrolux
Luxbacken 1,
112 62 Stockholm, SWEDEN

Toa-Throne
Enviroscope Inc.
Attention: Lars deJounge
P.O. Box 752
Corona del Mar, CA 92625

Biological Toilets

Biocycle MK 1
Biodynamics Ltd.
Camac Buildings
Ballymount Rd.
Clondalkin Co.
Dublin, IRELAND

Bio-Flo
Pure Way Corp.
301 42nd Ave.
East Moline, IL 61244

Low-Flush Toilets

Microphor
Microphor Inc.
415 East San Francisco Ave.
Willits, CA 95490

Safeway
Safeway Sanitation
75 Argyle Ave.
Buffalo, NY 14226

Thetford
Thetford Corp.
P.O. Box 1285
Ann Arbor, MI 48106

Toto Water Saving
Toto Toki Co. Ltd.
458 Shinozaki-Machi
Kokura-Ku
Kitakyushu, Fukuoka-Ken
802 JAPAN

Water-Saving Toilet
American Standard
P.O. Box 2003
New Brunswick, NJ 08903

Flush Valve Toilets
Flush valve toilets used in most commercial applications need only one gallon of water per flush instead of 5 gallons needed by residential tank-type toilets. They are, however, much noisier and require high water pressure. Available from most toilet manufacturers.

Holding Tank Toilets

Castel
Waterlo
41, Rue Censier
Paris 53, FRANCE

Caustica 128
Etablissements P. Mimault
45, Rue du Fort
94400 Vitry Sur-Seine
FRANCE

Closenet Standard
Etablissement R. Derouineau
Moulin de Pelissey
33-Gradignan
FRANCE

Flush-O-Matic
Sanitation Equipment Ltd.
Rexdale, Ontario
CANADA

Head-Mate
Wilcox-Crittenden Division
699 Middle St.
Middletown, CT 06457

Manoir
Waterlo
41, Rue Censier
Paris 5e, FRANCE

Marine Hand Toilet
International Telephone and Telegraph
Rexdale, Ontario
CANADA

OJO 7000 & OJO 7100
Plast AB CIPAX
Bredaryd, SWEDEN

Turquo
Waterlo
41, Rue Censier
Paris 5e, FRANCE

Oil-Flushed Toilets

Aqua-Sans
Chrysler Corp.
Space Division
Box 29200
New Orleans, LA 70189

Aqua-Sans
Sumitomo Shoji Kaisha Ltd.
Tokyo, JAPAN

Magic Flush
Monogram Sanitation Products, Inc.
Box 92545
Los Angeles, CA 90009

Aerobic Tanks

Aqua-Robic
Waltec Industries Inc.
Wallaceburg, Ontario
CANADA

Bi-A-Robi
Charles E. Traverse, Jr.
Box 133
Hamlin, PA 18427

Bio-Disc
Ames-Crosta Mills
105 Brisbane Road
Downsview, Ontario
CANADA

Cromaglass
Cromaglass Corp.
Box 1146
Williamsport, PA

Flo-Thru
On-Site Sewerages, Inc.
Box 567
Lafayette, IN 47901

Flygt
Flygt Corp.
Box 857
Norwalk, CT 06856

Jet
Jet Aeration Corp.
750 Alpha Drive
Cleveland, OH 44143

Melanesian Methane Digester
George L. Chan
University of Papua
NEW GUINEA

Multi-Flow
Multi-Flow Corp.
500 Webster St.
Dayton, OH 45401

Nayatic
Nayatic Sciences, Inc.
Box 869
Valley Forge, PA 19482

WHO Methane Plant
World Health Organization
Geneva, SWITZERLAND

Vacuum Systems

Electrolux Vacuum Sewage System
Electrolux
Environmental Systems Div.
105 45 Stockholm
SWEDEN

Envirovac
Colt Industries
701 Lawton Ave.
Beloit, WI 53511

Sanivac
Sanivac Div.
National Homes Corp.
Lafayette, IN

Vacu-Burn
Jered Industries Inc.
1300 S. Coolidge Rd.
Birmingham, MI 48008

Vacu-Flush
Mansfield Sanitary Inc.
Perrysville, OH 44864

Incinerating Toilets

Destroilet
La Mere Industries, Inc.
Walworth, WI 53184

Ecett
AB Hakanssons Industrier
Box 126
662 00 Amal SWEDEN

Elektro Standard
AB
Box 26
641 00 Katrinehol, SWEDEN

Elonette
AB Elonette
Grevgatan 50
114 58 Stockholm, SWEDEN

Incinolet
RPMC
2639 Andjon St.
Dallas, TX 75220

Incinomode
Incinomode Sales Co.
Box 879
Sherman, TX 75090

Pyrolet
Continental Commerce Ltd.
10721 W. Capitol Drive
Milwaukee, WI 53222

Toarett
Ageno Producktions AB
Knistallvagen 56
126 41 Hagersten, SWEDEN
SWEDEN

Stop the 5-Gallon Flush, 4th Ed., $2 Canadian from:
Minimum Cost Housing Group
School of Architecture
McGill University
P.O. Box 6070
Montreal H3C 3G1, CANADA
The best current source of detailed information on toiletry options—costs, water and electrical use, and construction details. Highly recommended.

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The institutional rate may be used by individuals, but we hope institutions will use only the special $10.00 rate.

Steve finds fourth dimension. Also while in D.C. *RAIN* met Rhoda Epstein, a community information specialist, presently working out of the National Citizens' Committee on Broadcasting. office doing a nationwide community communications directory. Walking into her space, seeing boxes and boxes of information, I walked into a contiguous, overlapping, coincidental world: this must be why I came to D.C. Rhoda will be moving to *RAIN* to help us expand our community information exchange base. She is currently completing a master's degree thesis at the University of Toledo (the only school in the country offering a program in community information development). She is one of the incorporators of the National Federation of Community Broadcasters; has a unique collection of information, especially in the area of community communications; keeping track of over 1,000 groups and individuals; experience in broadcast programming; and a never-ending delight in how people find out about each other and/or how they get from one idea or project to another.

We are presently designing an information exchange project which will expand the services of *RAIN* to include: the development of a network of community information specialists, expansion of production facilities to include, as well as print access, possibilities of a supplemental community news service (for radio, cable, TV, etc.); a book on networks and community communications (how to, theory and real time access); publication of special directories; assistance programs for others wanting to set up information exchange projects in communities and neighborhoods.

We will outline the project in more detail soon. (Special thanks to Carl Clark for introducing *RAIN* to the Rhoda Epstein Community Communication Center.)

S.J.

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